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The system builders' computer.

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Computer Systems

Logica sets date for Cambridge Ring

SUCCESS with its in-house Cambridge Ring network has led Logica to lay plans for selling the system as a general purpose networking product during the first half of 1981. Standard access logic boards for common equipment such as the PDP 11 Unibus will be available. Logica's own development work is with word processors, in which VTS-100 stand-alone machines can talk to each other or to two 300 megabyte discs, producing a kind of "distributed shared logic system" (CW, November 8, 1979).

Facilities for carrying voice on the same wires are under development, including store-and-forward and automatic call set-up. Logica feels the Cambridge Ring is particularly suited to digitised voice traffic because of its low latency, stemming from the small minipackets (16 bits of data with 24-bit headers).

About 1/2 of 2K of code is used in each word processor to handle the Ring protocol. Modifications to this to handle the new 2200 word processor, to be marketed by Nexos, will be fairly straightforward, the Logica development staff feel.

Logica expects to sell the Ring mainly to other systems houses for incorporating into products. There is a possibility that Nexos would sell a small system using the Ring, since staff there are beginning to flock to the office system market in addition to the large-scale Delta system they have been concentrating on (CW, January 31).

Dol scraps bottom limit on MAP aid

SMALL firms are to be helped more by the Department of Industry's Microprocessor Application Project by scrapping the existing lower limit of £10,000 on costs and by a speeding up of the appraisal process for project proposals. A normal upper limit of £500,000 is now being imposed on however.

Applications to MAP for support for computerisation projects is holding up despite the revision. The official report, as the project approaches the end of its second year. Projects in other fields are being cancelled or postponed, it is pointed out.

So far MAP has spent £1 million on training and awareness, including seminars, workshops and short courses. £1 million on con-

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Thursday, October 23, 1980

US network for Euro debut soon

A LOCAL networking system developed in California is ready to be sold into Europe in bulk, only four months after US deliveries began. Called NetOne, the system is made by Ungermann-Bass, a company set up last year in the heart of Silicon Valley by two top ex-Zilog people.

One of them, Ralph Ungermann, had been a co-founder and the other, Charlie Bass, general manager for microcomputer systems.

Based on coaxial cable links and multi-microprocessor network interface units, the system uses a processor-independent Ethernet-like protocol compatible with the version developed jointly by Xerox, Intel and Digital Equipment with the aim of establishing a standard for local networking.

Up to 250 network interface units, each with up to 15 devices attached, can link to a single network segment and these can be chained together so that ultimate capacity is said to be virtually limitless.

Each cable can be 4,000 ft long and carries data at 4 Mbps. Devices attach to the interface unit through a serial RS 232C port or a 16-bit parallel port based on the Zilog Z80 PIO interface chip and can transmit at up to 200K-bps in bursts.

But it is also possible to attach directly to the processor-independent internal bus of the network interface unit and transmit in bursts at up to eight megabytes per second into the buffer area.

Cost works out at between \$500 and \$1,000 per device attached. First European delivery was to Lausanne Polytechnic, Switzer-

land, in August. Bass told Computer Weekly he expected entry to the European market to be as successful as Zilog's, with the difference that it would generate more repeat business.

Company president Ralph Ungermann said he would be looking for European agents when he and marketing manager Jim Jordan come to London to take part in the Yankee Group conference Alternatives for Local Networking on October 21 and 22.

He claims his is the only company in the world offering a dedicated, fully supported, processor-independent local area network. The UK's Cambridge Ring is nearing completion (see above) and Xerox's Ethernet and Datapoint's ARC are both tied in to their data processing products, he says.

Contention is used to control network access and addressing is hidden from the user, who can give a symbolic name to target devices. Network interface units are user-programmable and a development system is supplied for writing interface software.

Ungermann and Bass left Zilog in January 1979 and set up the company with their own funds in July 1979. In January this year they attracted private venture capital from three major local investors: Adler & Co, Bessemer and Oak Investments.

NEWS IN BRIEF

Double boost for Cray

SERVICES firm United Computing Systems is to upgrade its Cray 1 to a Cray IS with twice the memory. The million word machine is due for delivery in December and will be available by January 1981.

Cray Research is to extend the lease on its system at the UK's Science Research Council at Daresbury until 1983.

IBM great . . .

IBM has reported a strong boost in third quarter profits, up 32 per cent over last year's poor third quarter at \$484 million on turnover up 20 per cent at \$6,400 million. The increase in profits is attributed primarily to a strong sales to rentals ratio.

NCR good . . .

NCR has reported net profit for the third quarter up 15 per cent at \$54.5 million on turnover up 12 per cent at \$792.3 million. It reported a slight advance in recording orders during the quarter.

Burroughs bad

NOTHING is going right for Burroughs at the moment. After its very poor showing in the UK and German sections of the Datapoint poll (CW, October 9), the company has had its second profit setback running. Third quarter profits fell almost 32% to \$42.2 million on turnover up 4% at \$699 million.

Univac gives ICL an opening in the US

From front page

should just about meet the requirements of disaffected 90/80 users, after which it would be a straight fight between converting to OS/1100 and VME/B.

In the Siemens case the company's biggest machines are dual processor models and there is no dual processor version of VS/9 at present. Eventually users would have to convert to the newer BS 2000 operating system, which would be similar to moving from Siemens BS 1000 to BS 2000, not a particularly easy conversion, although there is plenty of experience for it.

RCA was something of a where with its licences, and an even more attractive alternative might be to move to Hitachi's M-series machines, which run the company's VOS operating system and also had their origins at Siemens.

expressed earlier this year (CW, April 4) indicates that a substantial part of the base could be up for grabs to the highest bidder.

Optic fibre experiment

OPTICAL fibre links are to be connected to about 20 houses in Milton Keynes next year in an experiment by British Telecom to explore the provision of wideband services to subscribers.

The links will be built in new houses and used to supply television and radio programmes, as is already done by a coaxial cable network elsewhere in the town. But whereas in the cable network all the programmes are piped in simultaneously on different carriers, the fibre links will be used to carry individual programmes selected by the receiver, using the optical fibre network only for transmission.

Ex-IBM man for Exxon

THE umbrella marketing organisation for Exxon's diverse products companies has now been officially unveiled, with the name Exxon Office Systems. In addition to handling existing word processors and facsimile machines, the new group incorporates Summit and Xerox, the companies working on Exxon's office of the future, supervised by Dan Matthias, formerly head of electronic typewriter venture Oxy.

Former IBMor Bob Conlino is president of Exxon Office Systems. (CW, March 20), and Pat de Cavaignac, founder of VV doc, heads the International Division.

The new company is part of Exxon Information Systems which has also just set up a Communications Systems Group consisting of Delta, Telecommunications, Peripherals, Video and Intecom. These make a multiprocessor for telephone switching, voice synthesis, voice recognition equipment, and PBXs respectively.

New Data Recall chief named

DETAILS of the settlement between word processor maker Data Recall and its bankers Kleinwort Benson have now been finalised, resulting in Data Recall becoming a subsidiary of the bank.

Kleinwort Benson's direct involvement in the management of the company, as opposed simply to supplying funds, consists of taking a share of over 75% of the equity and choosing a new managing director, Anthony Sumner, to replace founder Eric Jones (CW, October 9).

Robert Brooks, of Kleinwort, who takes over as chairman, described the bank's actions as intended to "give us greater control over the operation of the company."

An additional £600,000 is being provided to Data Recall for product development. 1979 turnover was £2.2 million.

Prior to his death, 75% of the voting shares in Data Recall were owned by Jones and John Holton of Solartec.

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94,000 readers of CW

COMPUTER WEEKLY'S circulation has topped 94,000, making it the highest of any UK computer journal.

The increase reflects a higher demand for the paper created by the growth in the computer market - a growth we continue to share.

Computer Weekly has reached a steadily increasing readership since it was launched as the first of its kind in this country in 1965. Then the circulation was just 10,000.

The new figure will be revealed in return to be published by the Audit Bureau of Circulations (ABC) for the January-June period this year.

Boost for Amdahl Comms processor

AMDAHL Corp has finally announced its communications processor - and the reason for the delay is now apparent.

The company has been talking to Fujitsu about that company's 2806 communications processor for about a year (CW, January 10). However, the processor announced by Amdahl, the 4705, is based on 2806 technology, but has been enhanced by Fujitsu for more processing power and better IBM compatibility. Fujitsu is now building it to Amdahl specifications.

It is at present offered only in North America, for delivery before the end of the year. The European marketing plan is to be announced later and the processor will arrive here in the third quarter of 1981.

Four models are offered, all with from 64 to 512K-bytes of main memory. The 4705-3 takes up to 64, the 4705-6 up to 160, the 4705-7 up to 256 and the 4705-8 up to 352 lines.

He said that the recession had caused a reduction both in orders and shipments, and that the effect could continue into the early part of the current financial year. He also expected margins to fall short of the 17.2% achieved in the third quarter, since the company's overall business plan had been geared to a higher level of business activity.

Business had softened, he said, with customers who placed orders early in the year, following resolution of component shortages, proving reluctant to take delivery as the recession began to bite.

However, as with many other US companies, foreign business, particularly European, is holding the figures up, and the new 32-bit mini, the MV/8000, has been an instant hit.

Data General has made the switch from investing in hardware development to investing in software and expects this to grow at the same rate as the company's overall projected growth rate of 30%.

The company is also investing in mass storage innovations, systems architecture and communications.

De Castro sees the industry polarising into a first tier of broad-band suppliers like Data General, and a second tier of smaller companies concentrating on a single industry, type of product or geographic area. He expects more acquisitions and mergers to take place.

Data General has opened a new office in the City of London, at Adelaide House, King William Street. At the formal opening, Wayne Fitzsimmons, the new UK general manager at Data General, looked forward to the UK launch of the MT/80 series of terminals (see page 3), saying that they would be offered at "alarmingly low prices".

Japan to develop 10,000 megaflop

A SUPERCOMPUTER with a similar parallel architecture to ICL's Distributed Array Processor but with a power rating of up to 10,000 million floating point operations a second could be in operation in Japan by the end of the decade.

Its performance will be achieved by employing Josephson Junction or Gallium Arsenide semiconductor technology in each of the microprocessors in a 32 x 32 array.

The 10,000 megaflop machine will be developed by the Agency of Industrial Science and Technology, part of the Japanese government's Ministry of International Trade and Industry, at a cost of around £60 million.

The eight-year project is expected to start next year and will be carried out by engineers previously involved with the four-year MITI-sponsored VLSI development programme which ended earlier this year. That programme cost about £120 million, half of which was provided by the government and the rest by five major Japanese-based computer manufacturers, Fujitsu, Hitachi,

Mitsubishi, Nippon Electric and Toshiba.

The 10,000 megaflop parallel processor is intended mainly for government use in areas like nuclear research and meteorology, and MITI hopes that its development will contribute to the government's ambitious but very long-term fifth generation computer programme, which at present is at the study stage.

A committee made up of top computer scientists was set up last year by the government-sponsored Japan Information Processing Development Centre to define precisely the facilities that should be provided by fifth generation computers and its investigations are expected to continue for at least another year.

But one of the key characteristics of the fifth generation is assumed to be the dominance of processors employing architectures different from the conventional von Neumann approach.

systems software. Both organisations are affiliated to MITI, the Ministry of International Trade and Industry.

Nebashi has confirmed the move but has yet to disclose any further details about his departure to the computer industry giant. A spokesman for IBM Japan said that the employment of Nebashi was simply part of the company's routine recruitment policy to hire any really capable human resources from outside IBM Japan.

Downtime

by Chad

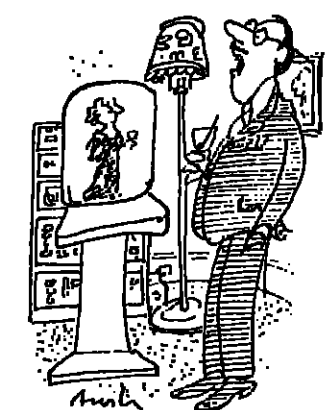
Love will sniff at locksmiths

ACCORDING to the managing director of Mastiff Security Systems, future computerised door controls and the like will recognise people by extra-sensory perception. This is an interesting idea. I am trying to imagine what the transducers for ESP will consist of. The only thing is, once you have invented a transducer for ESP, it's no longer extra-sensory, is it?

It would be even neater to invent a computer with clairvoyance. Then it could leave all the doors open until someone came

along who was going to do something naughty, and then slam the doors in his face.

Other slightly more feasible means of identification the Mastiff man mentioned were visual recognition and smell. "It's a wise computer that knows its own master." Never mind that the Feebles and the Smellies are supposed to be outstanding amenities in Brave New World. Why spend all that money on chips and circuit boards when a nice homely basset hound will do the trick?



"The zing's gone out of office parties since we decentralised..."

● I WAS discussing last week the French and their involvement with word processors and the like, which they call "Bureautique."

A friend of mine finds this inventing of new words especially grating. "What," he asks, "do they call the application of computers to aviation? Aerotique?"

Signs are that the Japanese face change

As the folks at The Times slowly get around to thinking about starting to use their computerised production equipment that has been lying around in various states of readiness for the last three years, the Daily Telegraph has just installed a Prestel set. Telling me this, a reporter proudly remarked: "This is the first piece of Twentieth Century technology this newspaper has acquired."

I was about to remind him about bullpens, and then I noticed that he was writing with a fountain pen!

American newspapers have of course long ago gone electronic, and the Japanese ones are beginning to switch over now. In the case of the latter, new technology

makes all the difference in the world, because they can use tiny boards for typesetting instead of those enormous racks of little metal blocks with characters on them.

This point was made by the recent Horizon programme called Goodbye Gutenberg. Because of the difficulty of writing anything in Japan, office procedures there have developed along totally different lines from the one in the West. Instead of writing memos and voluminous reports, Japanese managers tend to go and talk to each other. Now with the advent of Japanese language word processors and communications links, all that is due to change drastically.

But, I ask, before we start

quaking in our shoes, do we not wonder whether this fact benefit the Japanese? From making them more efficient by introducing with all the problems we have, namely bureaucracy, what is Parkinsonism? Maybe ruthless efficiency at the expense of the fact that they are not buried under mountains of paper!

I know Socrates is supposed to have objected to the invention of writing on the grounds that it would cause the human race to atrophy. I've never believed that view, but I shall be eagerly to see what happens to Japanese productivity as

bring in screens on every

GILB'S MYTHODOLOGY

There is always a simpler way . . .

THIS is one of the simplification principles from the list of 12 principles I listed in a previous Mythodology (CW, September 11).

You can use this principle if you are a designer, by deciding that you will not give up until you have found at least one of the simpler ways. I often begin along the simplification path by having a gut reaction that "there must be a simpler way". Then, picking up on the article of faith that "there is always a simpler way", I proceed to find one.

This may sound like a childish game. But it works. If you don't even think the thought consciously, that there must be a simpler way, then you are likely to get so wrapped in the complexities of implementing your overcomplex solution, that you will never have time to sit back and find the grand simplification.

There will always be a crowd of people around you insisting that there is no simpler way, that it must be solved this way:

- because the big boys decreed it;
- because IBM doesn't have an Apple II type system;
- because you can't do it any other

- way in IMS or Cobol or RPG;
- because it says so in the DP standards;
- because we never did things that way . . . etc. etc.

But there is another way. There are many more ways. And some of them are, my experience dictates, ultimately more acceptable to the powers that ultimately decide these things, than the current proposed solution.

Try again

You may have some difficulty in finding the solution. You may have some difficulty in working out the practical details, once the concept is there. You may have some difficulties in convincing your boss, and colleagues of the merits of the new idea (not your new idea, "our new idea").

You may meet obstacles in accessing the right level of management to discuss the new simpler solution with (don't be afraid to send a memo to the biggest boss). But don't give up. When you fail initially, try again and try for higher quality in communicating the idea. The idea may be great, but we do have a duty to

the idea to package it so that the other people out there can understand that it is such a great idea.

Let me give you an example of this in data processing. A government institution was preparing to take into use a new computer. Its old tape file-oriented system was based on 300,000 lines of Fortran code, made by 100 programmers over a nine-year period.

At a public evening in the middle of planning efforts the chief programmer announced casually to me that they intended to re-program the whole lot to Cobol, to online and to database on the new hardware (which was already contracted for). I knew in advance that they only had seven months to go, had not begun the work yet, and had at most three programmers who had any knowledge of Cobol.

"You are joking," was my initial reply. No, he was deadly serious, and they had just started the process of conversion.

"There must be a simpler way," I said to myself. I then listened to the long list of reasons why conversion to Cobol and all that jazz was the only possible solution.

Now, I'm sure that most readers are with me in thinking Fortran to Fortran (both on Control Data computers) seems like the simpler conversion route, whatever the disabilities of Fortran are for commercial record processing. But the arguments were spewed out with overwhelming conviction.

Surprise

In fact they were so convinced that, I discovered by asking, they had not even asked the hardware supplier if there were any conversion aids. Two weeks later a telex arrived confirming the (surprise!) imminent announcement of such aid.

"But," said my chief programmer, "it won't work."

"Why not?" I replied. "Because one half of all our logic is character-string handling, in complex variable length records. Cobol handles this easily, but the conversion from our present four character-per-word to the new 10 character-per-word machine would be an impossible task in Fortran (technical note: just think of all those DO loops geared to four character-per-word and the corresponding equivalence statements). The conversion package does not handle strings at all," he concluded triumphantly.

The technically competent reader will recognise that there is a simplification here. Four to ten is a simple conversion. The 35 com-



Tom Gilb is an independent consultant, lecturer and author on computing topics.

mercial subroutines in Fortran which did all such record handling were rewritten (which was simpler than recoding the 150,000 lines of code they generated).

This simplification was used and succeeded, even though they argued for three months about whether such a simple solution could really work. Readers will not be surprised to learn that the "real reason" for the complex Cobol solution was that these Civil Servants wanted desperately to be able to job hop to the nearest Cobol installation, and Fortran was not in demand elsewhere for administrative data processing.

The simple solution was there, but not many of them were willing to risk the wrath of their peers to make it work. The big boss, however, had a bigger boss (the Minister of Finance) and wanted to get the job done. He understood the simplification, and pushed it through.

Gilb's hypothesis: There is always a way, but most people refuse even to look for it - and when it is found for them, they will spit on it.

FOCUS

Power goes to the highest bidder

I HEAR from the US that computer hardware is to be sold at a public auction. Whether this suggests a slump in sales through normal channels or a shortage of available gear is unclear, but the event certainly portends interesting developments.

The organisation behind the enterprise, Sotheby's, is probably more noted for handling precious and fine arts, plus much of the British Heritage, than for handling data and computers. The company suggests that, if successful, it intends to run similar auctions on a quarterly basis throughout the US.

A quick check reveals that Sotheby's currently operates a series of Burroughs computers in London. Whether these particular machines are earmarked for early disposal to the highest bidder hasn't as yet been revealed. Possibly Sotheby's have it in mind to disperse with its total DP system, in which case members of the DP team could well find themselves coming under the hammer as part of lot B3700. Description tags would no doubt state: "Mainframe, pos, decursive early 1970s vintage. Despite considerable wear and tear, are good for further service."

Enthusiasm

The auction organisers report that their initial approach has met with much enthusiasm with over 1,200 US installations expressing interest. The highlight of the auction will be several large IBM mainframes as well as associated IBM plug compatible equipment, peripherals and other non-IBM hardware. It is to be hoped that equipment manuals will be included as well as contract manuals.

TEN YEARS AGO

From Computer Weekly of October 22, 1970

THE second report from the Computer Board warned that the very large US computers, that were then under development, could be too late to meet the needs of the UK.

A prestige NCR order from British Home Stores came off its return to the market. What was destined to be the first small computer with a virtual memory was launched by Systems Engineering Ltd of London.

President Nixon's early establishment of a computer centre in the White House was being solidified at the time.

Like Fishery Lab at Ann Arbor, Michigan used an IBM 1130 to help study changes in the fish population of the lakes, particularly the effects of pollution on them.

In a bid to get better reliability, speed, power and size memories Honeywell was developing a magnetically plated mini-computer. Two thousandths of an inch in diameter.

On show for the first time in the West was the East German Darc which was being exhibited at the time.

Scheme to train disabled 'futile'

A GOVERNMENT-funded scheme to train disabled people as computer programmers is beginning to look like an exercise in futility because of the enormous difficulty that has been encountered in trying to find jobs for those who have successfully completed the training.

Ron Dent, the college principal who is running the course, has hit out at the Manpower Services Commission who, he said, had "claimed to have done their homework" but had not done it.

Dent is principal of Queen Elizabeth College, Leatherhead; this project is his first encounter with computers. He is complaining bitterly that the MSC told

him there were 25,000 vacancies for computer staff, but failed to tell him that nearly all these were for people with experience.

Of the first 14 graduates of the QEC course, only three have managed to obtain jobs, and one of these had the job before coming to the college.

The scheme provides TOPS training in Cobol using MSC funding and teachers provided by ICL (CW, November 15 1979). The problems of the disabled trainees reflect the difficulty that all experienced TOPS graduates encounter worldwide have been having in finding jobs to start out in the industry.

Only one of the first 14 disabled

trainees had found a job as a programmer, after 130 applications. Another has become a trainee systems analyst, and another has gone to Belfast College of Technology to study computer science. One other has gone to the Spastics Society self-help scheme at Milton Keynes. Apart from one who returned to an existing employer, the others are all unemployed.

Julia Schofield of the BCS, who is leading a campaign to get employers to take on more disabled DP staff, commented that a work experience scheme was sorely needed. Only a handful of firms, among them BP, IBM, Hill Samuel, and Plessey, were represented at a meeting at the BCS to encourage further efforts.

IBM has, however, seconded a full-time staff member, Ronald Ellis, to head a new charitable agency called Opportunities for the Disabled, which is aimed at convincing firms to overcome the "psychological barriers" to taking on disabled staff. BP has also appointed a full-time personnel officer for the disabled.

Motorola's Japanese link

A JOINT venture has been agreed in principle between Motorola and Alzu-Toko, a subsidiary of the Japanese electronic parts company Toko. Motorola is to buy a 50 per cent stake in Alzu-Toko, but it will not be transferring any of its semiconductor technology over to the Japanese concern.

However, the agreement does involve Alzu-Toko's Japanese semiconductor sales subsidiary distributing Motorola developed products. Motorola will also be introducing some of its MOS products into the subsidiary's product line. Alzu-Toko is to keep its name in the venture and its management.

Although the Japanese semiconductor market is estimated to be more than \$2.6 billion this year, US manufacturers are only expected to get around 15 per cent. Meanwhile, Japanese companies have gained about 40 per cent share of the 18K RAM market.

Firm set up to sell teaching kit

IN a bid to speed the training of keyboard operators and typists, a new firm has been floated to design and market a teaching package which is based on Mostek 6502 8-bit chips.

The firm is Richmond Data Services of Forest Green, Dorking and its spokeswoman Sue Peritz said the system, called KeySkill, consists of a stand alone desktop unit comprising a Japanese VDU, 8K processor, a keyboard that can be tailored to the user's own kit and a cassette player with program tapes. Alternatively a pre-programmed ROM chip can be added to the processor.

Peritz said the system was designed to encourage touch typing from the start, as the keys are blanked off and there are special

exercises for keypads. In operation the system displays the blank keyboard with the home keys marked. If a mistake is made, the keyboard is "frozen" and the word "Error" flashed on the screen.

"Trainee performance is continuously monitored and a record stored for use by the training supervisor at the completion of a session," said Peritz.

A trainee cannot proceed to the next exercise until the last one has been accurately completed. Peritz said: "KeySkills is designed to teach both novice and experienced operators."

The system costs £1,500 and can also be hired. It can be adapted for schools, colleges and all branches of industry and commerce.

Interactive APL service

THE APL products house APL-Plus has introduced an interactive service for APL users in the UK. Known as APL-Plus VM, the service is based on IBM's VM/370 and is aimed at the experienced user.

The range of software products and languages besides APL-Plus now includes Fortran, Cobol, PL/I, Basic, Assembler, MPSS, SCSS and Easytrieve. It also provides application packages for financial planning, manufacturing and materials management and database management.

Electronic office for spastics plan

THE Spastics Society project in Milton Keynes is aimed at setting up a fully-fledged electronic office, in which 12 disabled graduates will be able to pursue technical and business careers. Eventually the purpose-built premises, which are to be operational next spring, could be the administrative centre for over 100 disabled graduates working from home.

Peter Deakin, manager of the project, feels there is no existing electronic office system that is suitable now, but has been talking to two suppliers, Ventek (which sells the Datapoint system) and Prime. He does not want to develop a special purpose system because

that would make it less easy to install elsewhere. Rather he would like to see each disabled person with his own portable box, acting as a keyboard, which would plug into any standard terminal.

Three fields of work are currently planned for Milton Keynes; one is on fluid mechanics in conjunction with Cranfield Institute of Technology (CW, November 15 1979); another is for freelance programming; the third is for entrepreneurs.

Currently Apple personal computers are being tested with disabled people to convince potential donors to the project of the benefits of this sort of technology.

Telecom to market database aid

BRITISH Telecom has bought the worldwide marketing rights to the Deutsche Bundespost's software for accessing third party databases via Prestel. The software was commissioned by Argon from Systems Designers Ltd to enable the Bundespost to run its Prestel-based Bildschirmtext service without threatening the German publishing industry.

British Telecom believes the ability to access existing databases will enhance the attractiveness of Prestel to foreign ITTs.

It also plans to run a market trial of the system in the UK next year. Prestel director Richard Hooper said this week that two or three existing information providers had agreed to put their money where their mouths were to see whether there really was a market for this kind of service, as had often been suggested.

Packet switching would almost certainly be used for the third

party database links, Hooper added.

Marketing of Prestel abroad is to be tackled by flexible federations of commercial interests, organised as a project leader and collaborating parties, so that a complete package could be offered including sets, adapters and chips as well as the computers and software.

Local manufacture could be aided with know-how as necessary and any part of the project from pilot trial to full service could be run on behalf of the PTT.

The revamped agreements for Argon and British Telecom both to sell in the US and for Argon to provide support for British Telecom's sales elsewhere (CW, September 4) were the first of a series of similar agreements to be made in the future with the UK teletext industry, GEC, other private system suppliers and component makers.

Govt buys Intercomm

A UK government department has purchased Intercomm, the teleprocessing monitor acquired from Informatics by another large US firm, Software Design Associates.

Although the choice of Intercomm suggests a large IBM mainframe outfit, further details about how and where the monitor is to be used are not available. The government buying agency, the Central Computers and Telecommunications Agency, is unlikely to reveal who else was considered in its competitive evaluation of TP monitors.

"Even we weren't given the reasons for the choice," said an SDA spokesman. "It was SDA's past experience of dealing with the UK government and I must say we consider them to be very fair and straightforward in dealing with vendors."

Intercomm is to be one of sev-

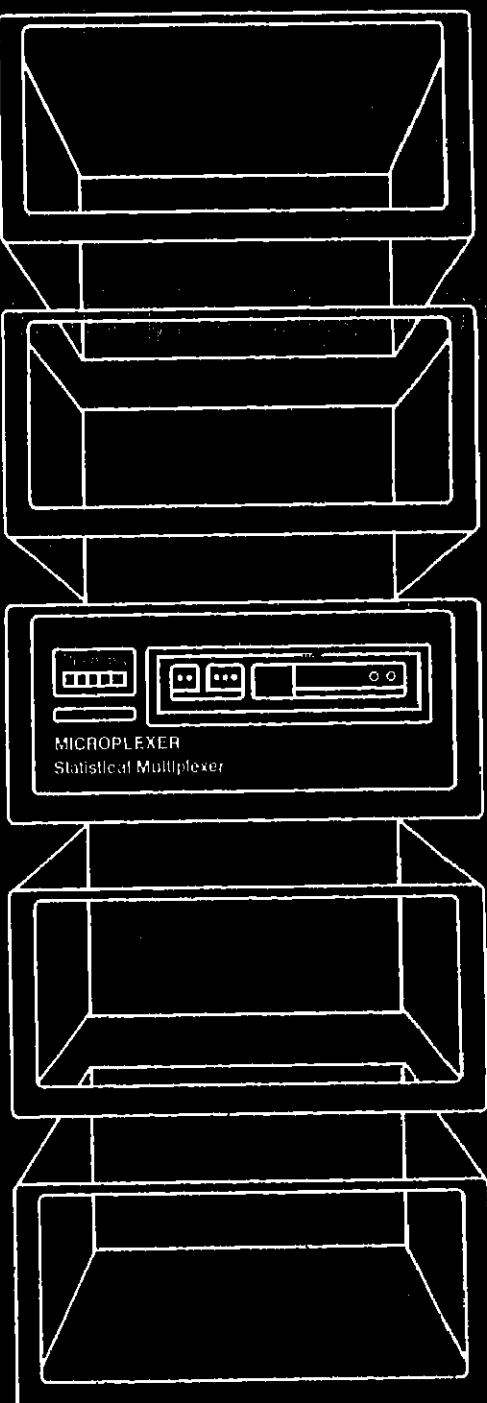
eral teleprocessing applications sharing screen and telex facilities. SDA is supplying the training and installation of the monitor, which it bought from Informatics last year along with its worldwide customer base, as part of a push into the software products market.

Third Action Plan

EXPENDITURE of £9.6 million on development of Euronet and promotion of the information services offered on it is being proposed as a "Third Action Plan" by the European Commission, for approval by the Council of Ministers. Among the work proposed is help with language problems by development of multilingual terminology tools; and further efforts on standardisation of user interfaces.

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It's investment now or fewer jobs, says Tim

THE message that ASTMS union leader Tim Webb has just sent out to his members is more than just another educated essay on the computer industry. For the first time, computer professionals are being told to look to their laurels.

For the past 10 years, they have been chased after, poshied and been made to think, by the media as much as by rapid change within their own industry, that the work they were doing was the work of the future, that the only way was up and, while industry after industry was falling into trouble, nothing could halt the acceleration of an industry on which all aspects of future society would be based.

Tim has told these people, and hopefully the government, that this is not necessarily so.

The message behind his pamphlet "Computer Professionals: Image and Reality" is that although there will no doubt be computers everywhere in the future, there is no reason to think that these will be UK machines.

Quite the opposite. All the signs point to the fact that unless more money is ploughed into the UK DP industry now, there will be no such future for UK DP staff. The Japanese and the Americans have already got a firm foothold in the UK, and we have only 5% of the world market.

Deficit

The UK started off as an innovator in the field of computing, but the industry now contributes a net deficit to the UK economy, amounting to £200 million in 1979. There will not be sufficient

openings in foreign manufacturing and sales offices in the UK to accommodate the vast number of computer staff now working in this country.

And yet the cry is "more staff, more training" - what is going to become of these people if the industry, as Tim predicts "crumbles beneath our feet?"

Cocooned

Tim's warning and his recommendations are one matter. The other issue that his pamphlet raises is how have computer staff come to be cocooned in this "unique" state of self-importance?

The answer lies in the obvious statement that the computer industry is itself unique. It is relatively young, and people - individuals as well as companies - have been drawn to it for this very reason. Once it was established, it seemed to be the only industry which was assured of a prosperous future.

The computer industry also differs from others because it employs a great number of professionals who are oblivious of, or not interested in, their industry.

Many of them are interested in writing programs, or designing systems and, apart from the people at the top, they never associate themselves with the industry, only with the job.

This arises because the compu-

ter industry covers not only those involved with making and selling computers, but also those who actually use them. It is like saying that the motor car industry extends to chauffeurs and coach drivers. And those who work for British Leyland or British Steel are acutely aware of the industry they are working for, and painfully conscious of the fact that any fluctuations in the market will directly affect them.

Computer staff suffer from no such instability.

Tim is saying that it is time they were. For their own good. His message can be roughly interpreted as: if you've got a job now in DP, you'll probably be OK; but don't encourage your children to get involved with it as well.

Who exactly can solve this almost inevitable landslide of the UK computer industry? Tim looks to the government and to the unions to play their part.

The government, he says, must be prepared to make confident investments in the business and also be more liberal with grants for areas where manufacturing branches of industry can be successfully housed.

The present government has a poor record for this sort of aid and it is highly unlikely that it is going to change its ways with just the

Puzzler

THIS week's problem involves a sort of mathematical "golf", to be played over a course of nine holes. Tee-to-pin distances are respectively 325, 275, 350, 225, 400, 425, 150, 300 and 250 metres.

You are asked to find two shot lengths which would enable a golfer to get through the course in only 26 strokes - always assuming that he was sufficiently skilful to hit exactly which of the two lengths was required on each stroke.

All shots must be played in a straight line towards the hole, or beyond it so as to play back in a straight line. For example, if the two shot lengths selected were 85 and 100, then the first hole could be negotiated using five 85 metre shots forward plus one 100 metre shot back.

See page 37 for the two optimum shot lengths and the 26-stroke minimum round.

My omission of just two little words in the October 2 problem brought a virtual maelstrom of phone calls and letters swirling around my ears. The first sentence should have read, "There is only one solution to the equation $x^2 + y^2 = z^2$ given the fact that all three integers involved are different and prime."

This would make the answer $2^2 + 11^2 = 117$ a unique, yet another big dose of humble pie for Puzzler, who hereby proffers abject apologies.



The cry is "more staff, more training" - what is going to become of these people if the industry crumbles beneath our feet?" asks ASTMS National Officer Tim Webb (right).

Women have nearly made it

THE ASTMS pamphlet "Computer Professionals: Image and Reality" besides being a way of frightening the union population to the provides some rather hot tips.

Like all good unions, it is the situation of women in the industry as a case in point.

"There is little incentive," for encouraging the industry to recruit female graduates with a title who have been devalued by the higher education system into obtaining an degree than the traditional male engineering and science engineers.

"In the related needs communications, official 1981 ment of Employment showed that only 1.04% of women," it continued.

Success

Come on, ASTMS! In the "related area of telecommunications" which may be more handful of women.

one field where many have succeeded. The industry is looking just about the same female graduates were finding their own in the general.

Now, walk into any computer firm, software installation and you will find women filling many different roles from operators to software agents, programmers and managers.

And as for the "unfettered" surely this is a man and women alike. But that it hinders success in the industry is no longer true, except in specialised areas of design.

Most users actually state that a non-technical degree is often preferable to some types of jobs.

So although we at ASTMS for championing cause, the battle is nearly

prompting of one white collar official.

The Microelectronics Industry Support Programme has been reduced to £55 million. This is the same amount now allocated to the Microprocessor Applications Programme (MAP). ICL has only received £40 million in direct financial assistance.

The most obvious pointer towards Government awareness of the situation is the delay over Inmos.

"The delay in providing Inmos with the agreed public funding does not make for confidence in the government's ability to comprehend the available opportunities," writes Webb.

Although stating that there are no instant solutions for all the problems that arise in a "fast-moving profession", Webb lists in his general conclusions that the government should require foreign multinationals to comply with the provisions of the OECD guidelines on the provision of training information, particularly trans-

fer pricing and net import and export figures.

Education, too, for young and old, is something much overlooked in this country compared to our foreign counterparts. Both in schools and in government retraining schemes such as TOPS and Threshold, more money and skills should be made available.

And the onus does not rest on the government's shoulders. Industry, too, should look further than just solving its immediate staff shortages and invest more in in-house training schemes to compensate for the ever increasing number of redundant skills.

This point is one which concerns Webb particularly. It is now a fact that people are being made redundant at an early age. We are quite accustomed to the assumption that new technology is putting people out of work.

The notion that people are being made redundant who actually work with that technology, because their skills are obsolete, is an alarming one.

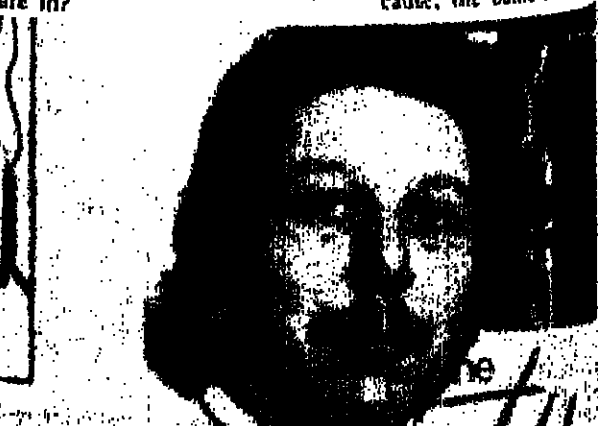
Why computer staff need a union now

IN his report, Webb notes that computer professionals are "probably the single most mobile occupational group in the UK, with an estimated turnover of 20% per annum."

They are a young, highly-paid group. But, says Tim: "High mobility, whilst superficially attractive and occasionally desirable, can disadvantage the employee in that employment legislation, designed to protect the individual at the place of work from discrimination or dismissal, does have stipulated minimum periods of service in order to qualify for such protection."

To help those who are susceptible to this kind of danger, the unions too must fight. Salaries should be properly negotiated and evaluated and should reward expertise, responsibility and qualifications. Provisions should be made for sabbatical leave and early retirement and job security agreements should be negotiated.

All these measures can only come about, however, when everyone who has anything at all to do with the computer industry be-



Webb... the delay in providing Inmos with the agreed public funding does not make for confidence in the government's ability to comprehend the available opportunities.

SOFTWARE FILE

For those who do not want VSE

THE release of the new Nixdorf 8890 is going to be a slow, controlled release in Europe," said Steve Bruniarski of Gerrard Data Systems, the company which has just tied up with Nixdorf's NCSG to market a whole range of software products (CW, September 18).

"Our aim is to get people who don't want to go over to VSE. Nixdorf bought out EDOS from CSC to make it easy for people to migrate from DOS/VSE to another

OS, since IBM won't support 'foreign bodies'. It allows clients to change OS without any change in standard VS job control," he continued.

He let slip an interesting side-light on German logic. The new Nixdorf machine, based on Elbit's Anal (CW, September 25), has been titled the 8890 to avoid the teutonic tongue-twister 8880, acht-und-achtzig achtzig, which was the next number in line.

Gerrard Data Systems will be

concentrating on the NCSG range which aims to provide a "complete alternative" to IBM software.

The range includes Dex, an on-line data entry system, Econ, for extended console support, an extended procedure language, EPL, and facilities for tape and disc management. There is also a database management system and a batch/online facility for program development and development and maintenance.

The online data entry system is said to improve operator control of CICS, allowing direct portions, screens and messages. Screens can be shared by other applications and the system handles VM-type commands: one user-oriented feature is that it scrolls downwards rather than upwards.

A large gap in the range has just been filled by the choice of Altergo's Shadow II TP monitor for the 8890, under the name TCP.

Mainframe-type query language for micro users

A QUERY language and report writer has just been released by Micro Data Base Systems, the US firm which supplies a database running under CP/M operating system for 280, 5502, 8080, 8086 and other machines.

The query language, MDDBS.QRS, follows the trend set by mainframes towards ad hoc queries phrased in non-procedural English phrases. It works with the hierarchical version, MDDBS, as well as the MDDBS.

The language follows a similar format to its mainframe "big brothers". A one-off query to list all females and their phone numbers under 35 in department 43 would be phrased as follows:

LIST NAME, PHONE FOR SEX = FEMALE, DEPT = 43 AND AGE LT 35 THRU DEPTS, EMPLOYEES.

Although not entirely free format, the design of the query language requires very few tricks to

be learnt. There are also facilities to customise the language for non-technical users, and questions can be filed for further use or routed to a printer.

Machine language

The query facility, like the MDDBS system itself, is written in machine language which speeds up the process of retrieving data.

The range of the language is surprisingly wide, allowing complex expressions in the FOR clause, and able to cope with arithmetic expressions, even involving one or more data type.

Another announcement from MDDBS at the Chicago Software Info, where MDDBS.QRS was on show, was the forthcoming MDDBS.VAC facility which extends the Data Definition Language to give the database designer greater control over the mapping of logical records.

Thumbs-down for market

THE software mart which formed part of the IKD in Berlin was given the thumbs-down by most of its participants. Only a few stands - Siemens, IBM, Philips and Nixdorf, with a couple of software houses - were to be found in a large echoing hall. More significantly the exhibition was off the beaten track, housed in the bridge section of the ICC Congress Hall, and visitors were scarce.

IBM's stall was unstaffed, displaying a gripping range of brochures. Siemens did better, with a real time model demonstrating remote control by robotics.

No one seemed impressed by the turnout and organisation, but the idea won general approval. It is hoped that the next IKD, to be housed in the ICC from now on, will give the show more limelight.

UK launch

AN Integrated Business System, IBS, has been launched into the UK market by Prime. The move is part of the company's strategy to provide "total systems" for medium to large users.

Rewritten in Cobol

THE accounting package Saphire from Pentagram (Software File, August 24) has been rewritten in Cobol for mainframe users. The new version will be available in December at the same price as the previous RPG II package, £4,500.

Real time system

A REAL time production system for medium to large factories has been adopted by Cable and Wireless for Data General kit. It has already found a customer in Anstons, which has dropped its IBM bureau service as a result.

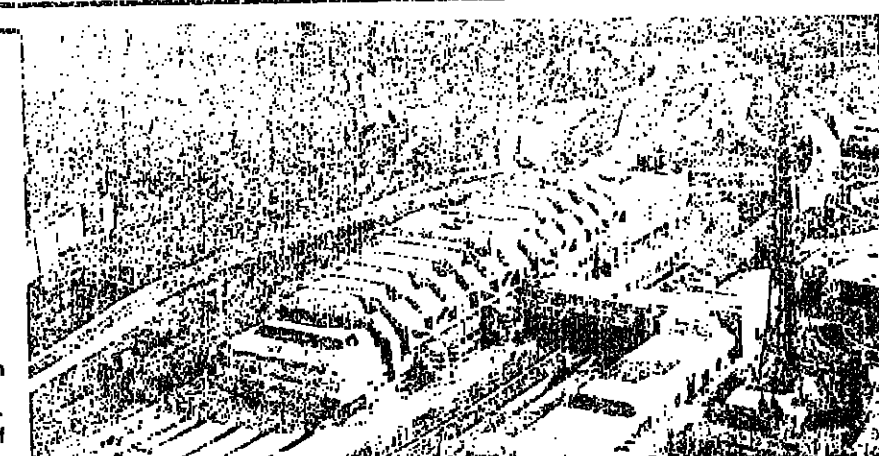
The production system Impcon comes from Computer Systems Development and costs £15,000. Its systems are sold on a turnkey basis, mostly in the manufacturing field, and are also available on Systeme equipment.

Host to the IKD

THE IKD in Berlin (right) was the event chosen by Nixdorf to launch its new remote maintenance facility for use with the Nixdorf 8870 operating system.

The presence of the company at the software mart was an indication of its keenness to be seen as a purveyor of software as well as hardware.

Also on show for the same machine were the utilities Checklist Input, Customer-Oriented Output, Chlico, and the Implementation Support System, ISUS.



Mastering info technology

BERLIN'S International Congress Centre was the host for this year's IKD, the biennial congress for specialists in Data Processing. The 4th IKD was held on the theme of "Mastering Information Technology - Challenge of the Eighties".

The well-equipped ICC was chosen as the venue so that participants from Eastern block countries, including East Germany, could attend. Over 700 people from over 20 countries took part.

Papers in English, French and German were given by experts in various areas, particularly the world of work and how it

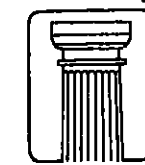
is affected by advances in technology. Chairman Eckhard Fruchs encouraged the DP world to "abandon its reticence" about the major social advantages changes brought about by computers.

"We must aim for the demystification of the computer. We must get our message across to the public to reassure them that there are advantages to the development of information technology," he said.

Among the global issues dealt with by the conference were the development of computer know-how in the Third World, and the role of women in DP.

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We must consult shop floor, says Governor

"UNDERLYING much contemporary writing on computer technology is a stress on the importance of consultation with those affected, particularly in the workplace," the Governor-general of Australia, Sir Zelman Cowen, told delegates when he opened the Eighth IFIP World Computer Congress at Melbourne.

Indicating a problem common to many countries, he warned that Australia was becoming totally dependent on imports for the supply of its information technology.

This raised the question of policy, on which, as Governor-general, he did not wish to speak.

"I point only to the problems which this generates for a society dependent in many vital and sensitive areas on operating computers," Sir Zelman said.

"What if sources of supply are threatened in an international crisis?" he asked.

Vulnerable

He mentioned a Swedish government report which examined aspects of society's vulnerability.

Capture the computer, says the Swedish report, and you capture the society which depends on them.

Societies were also vulnerable to acts of terrorism against computers and to the risk of disasters and accidents that could dislocate sensitive computers, Sir Zelman pointed out.

"As society becomes increasingly dependent on computers these concerns assume increasing importance," he said.

He also referred to the threats to individual privacy posed by computer databanks.

Problem

Quoting Mr Justice Kirby of the Australian Law Reform Commission, Sir Zelman said modern privacy was the business of asserting and upholding the individual's rights in respect of personal data about himself.

"Privacy invasion today is a



IFIP MELBOURNE

disputes: the printing industry is one example.

Competitive

Also at the opening was Ted Wastie, president of the Australian computer society, who said countries like Australia must computerise their manufacturing industries in order to stay competitive.

But Wastie stressed, it must be realised that computing is a service industry. "Computers must be introduced at a rate which the general public finds acceptable," he said.

"If some of your discussion dwells on matters of high technicality, the holding of the congress helps to focus attention on more general issues relating to the impact of computer technology on our society and its economy."

He also quoted Ashley Goldsworthy, chairman of the congress organising committee, who has pointed out that computer and communication technologies are pushing Man at a pace with which he can barely keep up.

"The most important issues facing technologists today are those concerned with human and social values rather than technical problems," Goldsworthy said.

Distrust

Goldsworthy believes that one of the fundamental problems is the fear and distrust in the minds of the community brought about basically by a lack of understanding of technology.

Sir Zelman said the range of computer functions in the public service and administration of a modern state was very great.

"Once established in this way, computer systems are effectively irreversible. The impact on employment and on the character of employment is very important. We all know areas in which the proposal to introduce computer technology has produced fierce

and Data General.

Its Hapas software for professional accountants and Practices software for the medical profession will now be offered with its own hardware. But initially its Sheila Small Business System will still be based on Data General hardware.

The three 3900 models make extensive use of Intel 8086 16-bit microprocessors. With built-in 200 megabyte discs from Storage

Technology, the largest model was said to have over 10 times the capacity and four times the speed of other systems in the \$240,000 (\$20,000) price range.

It is also said to be the first computer product to provide DMA (Direct Memory Access) facilities on all input/output channels.

Hartley has installed 200 systems in the British Isles, including 40 in Eire. It is to launch the 3900 in the UK early next year.

It will also launch Sheila in the UK in 1981 but will not say whether this will be a Data General or 3900 based version.

Over half Hartley's orders come from outside Australia and worldwide it has installed 1,500 systems. Its turnover this year will be about \$A20 million (\$10 million).

With the emphasis on practical

The IFIP exhibition was the largest computer show ever held in the southern hemisphere. Over \$A1,000 million worth of computers were on show and some of the 170 stands cost \$A100,000 to construct.

Over 1,600 people registered for the congress and, with on-site registrations, about 1,800 were expected.

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Trainees' four point scheme

NADOW founder Sheila Blackmore gave details of the practical training in basic office skills to IFIP. She said students with a DP aptitude went on to the computer training scheme.

The standard IBM programming aptitude test was used and the pass mark was constantly reviewed to ensure that trainees achieved the same level as required by users.

The computer course was divided into four segments, she said:

First was an introduction to computer fundamentals where trainees were introduced to computer concepts using a combination of courses including self-study and audio visual techniques as well as visits to computer sites.

Second was an introduction to microprocessors and computer languages, where extensive use was made of an Apple II micro.

Third, a segment that covers programming languages and provides training in Cobol and Basic. Facilities for running test programs include an IBM 3275 Model 2 video terminal display unit linked to an IBM 3031 for Cobol and an IBM 370 for training in Basic.

Fourth was on the job training, and, Blackmore said, invaluable help had been given in this area by supporters of the scheme.

There were 70 trainees a year now, she said.

Bid to get more jobs for disabled in Australia

IN a bid to get more disabled people jobs in Australia, the National Association for Training the Disabled in Office Work (NADOW) has developed a scheme that concentrates on skills in computer operations, programming and data entry. IFIP was told.

In a paper, "A computer training scheme for the disabled," prepared for the IFIP congress in Melbourne, Sheila Blackmore, NADOW founder, describes the NADOW computer training scheme.

She hoped that similar schemes could be set up in other countries to train the disabled in computer skills, but said her association was concerned with people who had no mental problem.

Challenge

As such their real challenge was just like anyone else's. Thus they did not want to sit at home doing nothing when they could pursue a worthwhile, interesting and challenging career. They did not want to live on government pensions and they do want to enjoy some of the better things in life that money can provide, Blackmore added.

Studies had shown that in Australia over one million people suffer from chronic limiting illnesses, injuries and impairments.

NADOW is a voluntary association formed in 1968 by interested business people who recognised the need to provide an assessment and on-the-job training facility in

Background

It was against the NADOW office training background that computer training scheme started in 1973.

"Irrespective of what disabled people are ideally fit for training in some branch of processing, it is mandatory that they undergo a 13 week course in our commercial computer training scheme," Blackmore said.

She told delegates that it was vital that, as computer professionals, they understood, and it possible helped the care of handicapped people in their own countries.

"We should all remember that we have thousands of vacant computer positions for which we have no qualified staff. Yet, highly trained and totally qualified handicapped people are in immediate and ideal solution to our people shortage."

"Of the high proportion completed the course, 85% placed in the office and computer fields. Many of the people who have been trained would otherwise be in receipt of pensionary assistance and a burden to the community," she concluded.

computer applications and services as well as technical assistance, the congress aimed for the possible audience.

One paper that attracted interest here was "Computer gift of fire" by Professor G. Gutlich of Toronto University department of computer science. He said the effect of micro-employment was much more serious problem than their own privacy.

Threat

Also, the use of computer decision making could lead to systems that were too rigid, especially in government, systems that failed to meet local needs, he added.

And many countries are going computer imports as a means of their balance of payments technical sovereignty. "We have reached the stage where we must make judgments on how we use computers, on whether to use their application in some way and, perhaps, sometimes, whether to use them at all," Gutlich said.

The dissemination of technology must be controlled in such a way that society did not have mass unemployment and job displacement, he concluded.

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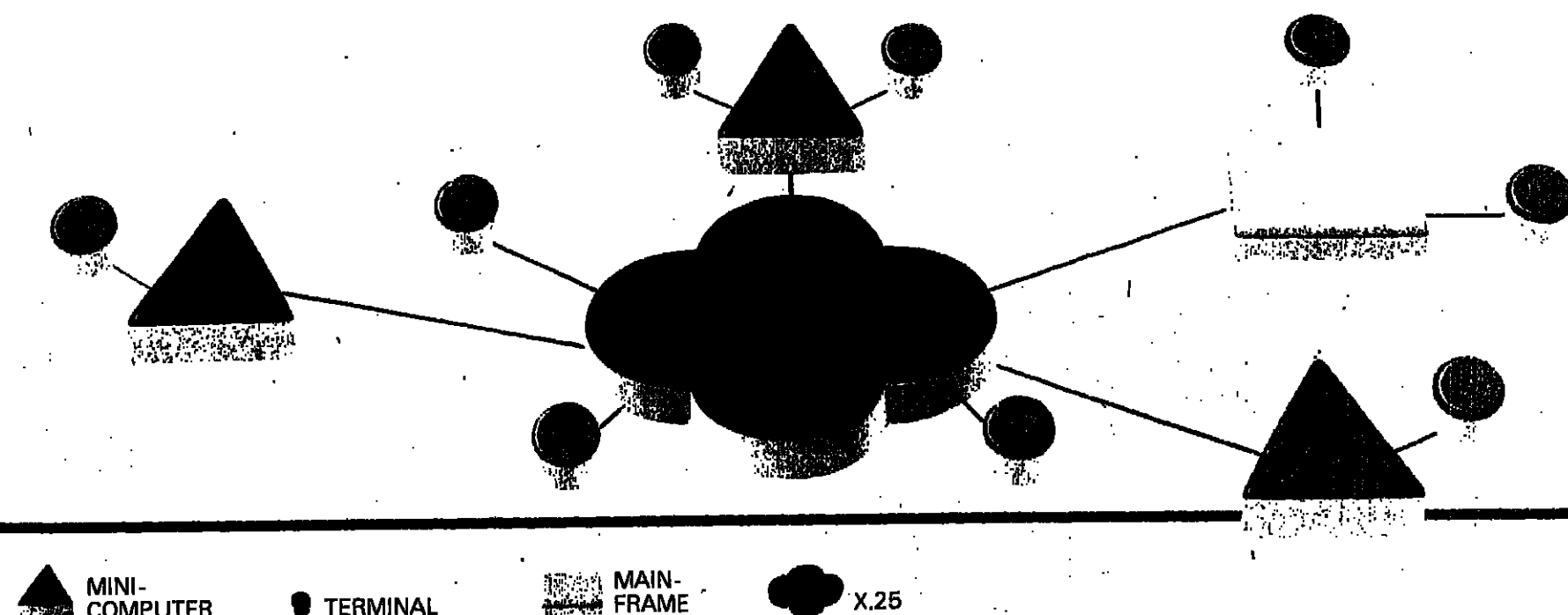
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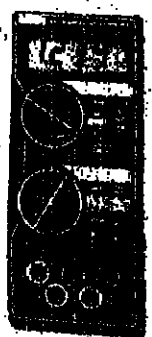
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ARC local network is star of Ventek's autumn roadshow

VENTEK started its roadshow off in London last week at the Bloomsbury Centre Hotel. During the next few weeks the show will travel to Birmingham (October 28 to 30), Manchester (November 3 to 5), Bristol (November 9 to 10), Leeds (November 11 to 13), Edinburgh (November 17 to 19) and back to Birmingham (November 25 to 28).

On show will be the two year old proprietary local area networking system,

ARC, from Datapoint in the US as well as the NBI word processing system and the UK-made Data Recognition hand-held terminal.

Coaxial cable

The ARC Attached Resource Computer, uses coaxial cable carrying data at 2.5 megabits per second to link up to 254 processors. These can be: a file processor

such as a 256K-byte Datapoint 6600 controlling twin 60-megabyte disc drives, which costs £51,000; a £5,000, 64K-byte model 3800 application processor running word processing or data entry software; or a payroll program.

The NBI system is a stand-alone word processor which costs from £7,500 and comes from a firm at Boulder, Colorado, whose initials stand for Nothing But Initials. It was launched in the UK in Feb-

ruary, although it has been on sale for two years in the US and is claimed to be the fastest selling word processor there.

First time

The hand-held terminal from API Data Recognition, the Reading-based subsidiary of the Datapoint distribution group, is called the Datapoint 5.

Costing about £1,000, it is three months

old and is being given its first exposure in the roadshow.

Based on a CMOS 6800 processor, it puts 500 lines from 1K- to 12K-bytes of data storage, and can be linked to a television adapter, an acoustic coupler, a code reader or a printer, as well as having a 16-character 17-segment LED display built in.



Pressmen win small online victory

JOURNALISTS on the *Times* and *Tribune* have won their fight for larger pay for news stories that are distributed electronically on public information services as well as being printed in the paper.

However, as part of the settlement, journalists' union's Newspaper Guild has been given the exclusive right to represent those who are fed to online terminals.

Implications

The agreement has implications for news papers throughout the UK that are thinking of going online to anyone who has a terminal, as a by-product of the printing process.

The *Manchester Star* and *Tribune* are one of the 11 daily papers in the UK to be connected to CompuServe's *Info* service, which provides news all over the UK.

On July 24, the paper's data went online in late 1981.

The *Star's* business manager, Lee Canning, said: "It's hard to measure what effect the settlement will have because the whole thing is so new."

Other issues in the strike were more routine ones about pay, but these have also been settled.

Weather centre

THE Indian Government has given the \$5.5 million contract to the centre which will process data from its *Tiro* weather satellite to Systems Development Corp., California firm which is the main contractor for the project.

The centre, in New Delhi, will be equipped with Digital Equipment Corp. PDP-11 minicomputer.

Data from the satellite will be used in daily weather forecasting and ocean forecasting and flood control.

Odometer

AN ELECTRONIC odometer that can retain a vehicle's mileage under all conditions, including the loss of power, has been developed by National Security Council's PROM for military use. The device uses a microcontroller at the programming device.

Users face 22% rises in maintenance bills

A REPORT from the United States reckons that over three more than 40% of the average DP budget goes on hardware and software maintenance.

It goes on to forecast that user expenditure for maintenance will increase at the rate of 22% a year until 1985, and fall to 18% a year from then till 1990.

Paced by the prospect of such trends, manufacturers and users in the US are looking for ways to reduce their maintenance expenditure.

In the short term, manufacturers are looking to give the users as much of the maintenance responsibility as they possibly can.

Users are being offered relatively lower prices for maintenance

BT to develop 9600 bps modem

A MODEM for two-wire duplex data transmission at 9,600 bps over ordinary dialled telephone connections is being developed by British Telecom at its Martlesham Research Laboratory near Ipswich.

The development is planned to make high-speed digital links widely available for use with facsimile, slow-scan television, text transmission, packet switching and other data services as they grow.

Production versions are expected to be on the market in 1983.

Development

The development has several parts. An adaptive echo canceller is used to achieve duplex operation and work in this area is also being applied to loudspeaking telephones, satellite links and 80K bps subscriber lines for carrying simultaneous voice and data traffic.

The modulation technique used, quadrature amplitude modulation, uses four variations of the amplitude and four variations of the phase of an 1,800 Hz signal. Following satisfactory tests, the design is being implemented in seven LSI five-volt NMOS circuits to bring down the size and cost of the production version.

This technology is compatible with processes used by General Instruments and Plessey, although no agreement has yet been reached on manufacture.

Minor corrections are being made to the masks of the first chip to be sampled, and debugged samples of all seven are expected by the end of next year.

CCITT, the standard-setting body for the PTTs, has subcommittee evaluating methods of implementing echo cancellation and frequency division for two-wire duplex transmission. Frequency

division is said to have the advantage at speeds up to 2,400 bps, but at 9,600 bps there is not enough bandwidth on voice-grade lines to share between two separate carrier frequencies.

British Telecom has been running field trials of 1,200 bps modems for two-wire duplex operation and is about to place bulk orders for them.

Called Hotel-Tag and from Systems Reliability, the system records the digits dialled, time, date, duration of the call and whether it is local, STD or international.

An extension of System Reliability's Tel-Tag system, Hotel-Tag is said to prevent misunderstandings over charges for international calls - something which has caused problems for hotels since the introduction of international dialling.

Hotel-Tag 600, the latest model in the series, monitors up to 600 lines. A typical configuration would comprise 50 exchange lines, 100 administration extensions and 50 bedrooms.

The system may be upgraded to control up to 1,000 lines.

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Milgo controller for complex nets

RACAL-MILGO has launched a controller for large and complex networks, the CMS communications management system. It was developed in the UK with the aid of a 25% investment grant from the Department of Industry towards the £1/2 million development costs.

The system is based on a Digital Equipment PDP 11/34, as was an earlier US-designed network controller the Model 185 which is now installed in 10 networks supporting more than 1,000 terminals each, but this one is designed to support up to 10,000 addressable modems and multiplexers.

Although the smaller versions are designed to help bring efficient operation and reduced costs to small networks, the larger systems aim to make it possible to operate large networks that would be too unwieldy to manage without some such tool.

Split

Management of a large international network can be split between up to four separate sites in a medium-sized CMS system and the responsibilities for each console can be assigned as geographical parts of the network or as functional parts.

For example, the responsibility could be split between the US and European portions of a network, or between the parts involved in batch access and those involved in interactive access, or one site could be concerned with security aspects of network operation while another is concerned with the general management of the network.

Directed

Alarm information is then directed to the appropriate site when a fault occurs, where the operator can call up diagrams of the network on one or two colour graphics displays, while he reconfigures links around the faulty section and runs tests on suspect equipment from a split-screen VDU. System prices start at £47,000.

At the same time Racal-Milgo launched a new family of statistical multiplexers, the Omnimax, developed at the main production plant in Miami, Florida. The range contains three models, covering four to 32 channels, and it is designed to be compatible with Racal's modems, offering network control facilities via a separate supervisory channel.

Independent

All channels can run at up to 9,600 bps and can take data from any source independent of the protocol used. Multiplexing is bit interleaved and channels contend for time slots, only passing data when the request to send has been acknowledged.

Three types of printed circuit card are used throughout the range: asynchronous and synchronous channel cards and an aggregating card which also controls the front panel. Extra RAM can be added to enlarge the data buffer to cope with the delays experienced in satellite transmission.

Timeplex launches stats multiplexer

MULTIPLEXER maker Timeplex has announced a 48-channel addition to its Microplexer range of statistical multiplexers and other data communications products to be shown for the first time at Comspec next month.

It also announced that its turnover of \$17 million for the year ended June 30 had grown by over 40% for the eighth year running.

The new Microplexer, the M48C, doubles the previous maximum of 24 channels handled by the range and each channel can be synchronous or asynchronous, with speeds up to 9,600 bps, characters from five to eight bits and odd or even parity. Synchronous channels can now communicate using IBM SDLC, ICL, Honeywell and CDC protocols, as well as IBM bisync which was already supported.

Support for Univac and Bur-

roughs protocols is to be added by the end of the year.

On the line side X25 Level 2 is used, with cyclic redundancy checks being inserted so that errors can be corrected by automatic retransmission.

Other products announced included the M100 software demultiplex unit, which converts the synchronous data stream received down the line into an asynchronous format to be fed to a CPU or front end processor for demultiplexing internally, the M2 Acculink error corrector, for asynchronous links running at 300 to 2,400 bps between minicomputers or feeding simple terminal devices such as plotters and the CM310 data channel monitor, which can display up to 2,000 bytes of data on each of three channels running at up to 19,200 bps.

With that in mind, Perex is busy producing its HD 6400, which is intended for back-up and data transfer on Winchester discs. The manufacturing part of the Sintrom Group, Perex, has opened an office in Silicon Valley, California and intends to market in the UK and Europe as well as the USA.

According to Briton David Sear, who is in charge of the US office, the company has already received evaluation orders from several Winchester users in the US.

Here, Sintrom managing director T. D. Dalzell (left) is inspecting the HD 6400 in the assembly area.



Perex back-up help for Winchester users

WINCHESTER discs give systems access to up to 50 million bytes of data but, as the devices are fixed, there are potential problems in relation to data security - files may be accidentally over-written, or the equipment may be damaged or stolen.

Major extensions to the standard accepted by IBM VS Fortran include free form source and an IN-CLUDH statement. A batch debug facility is also provided.

Optional flagging of non-standard syntax is provided, either at full language or subset level.

A TEXAS Instruments' Model 771 small business system has been used by Leicestershire-based firm, Micro Owl, with an Omni 800 Model 810 printer in the development of a property tailoring scheme for estate agents.

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When will the oil run out?

Practical Computing tells you how to find out

The November issue, available from leading newsagents, contains a program based on the computer model which gave rise to the Club of Rome's famous "Limits to Growth" report in the early 70s. So if you want to model the world economy on a microcomputer and find out when the oil will run out, buy Practical Computing.

Also in this issue:

Reviews of the 5120, IBM's bid for the microcomputer market, and the Acorn Atom, a £150 micro with high resolution colour graphics facilities.
And on the software side, a review of muSimp - a package that does algebra, trigonometry and calculus, and a description of a program for controlling model trains.

All this, plus a Software Buyers Guide and our regular advice columns for users of Pet, Apple and Tandy micros for only 60p. From your newsagent or post this coupon now.

Out October 22nd.



To: Marketing Services Department, Room 316, IPC Electrical Electronics Press Ltd., Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Please post me a copy of Practical Computing every month for a year. I enclose cheque/p.o. for £6 (inc payable to IPC Business Press Ltd.)

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Aiming at PoS market

JAPANESE electronic cash register manufacturer, Omron Tatsumi Electronics, has formed a UK subsidiary to deal with what it considers to be the growing point-of-sale market.

Called Omron Terminals (UK) Ltd and based at New Malden, Surrey, the company has set up a nationwide network of technicians to provide a full range of

manufacturing, marketing and servicing facilities.

Its latest product, Omron System 80, is a medium-sized cash register which can be equipped with an OCR reader, optical scanner, cassette, floppy disc, VDU, weighing scales, modem for data transmission, 256K of memory for price look-ups and a linked terminals system.

Own software

THE Nippon Steel Corporation, which used to farm out its software jobs to independent companies, has formed its own software production firm. The new firm, Nippon Steel Computer Systems, has £50 million (about £100,000) of capital and will undertake programming and systems development for the head office, and works in Nagoya, Kimitsu and Tokyo.

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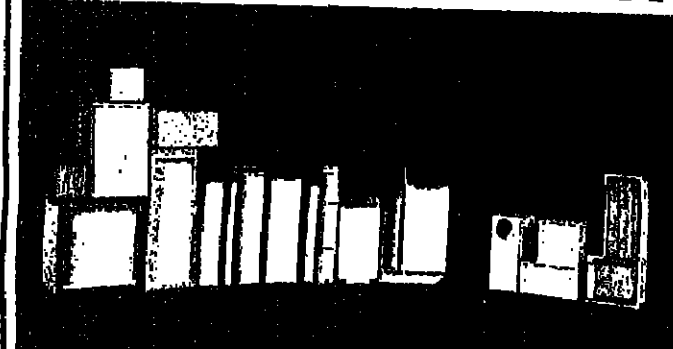
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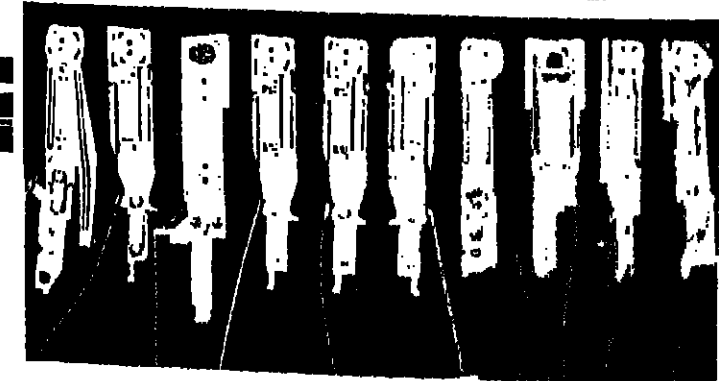
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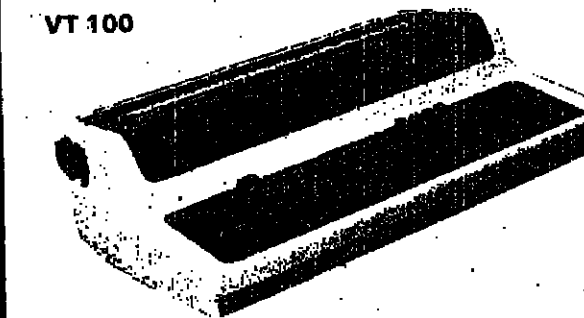
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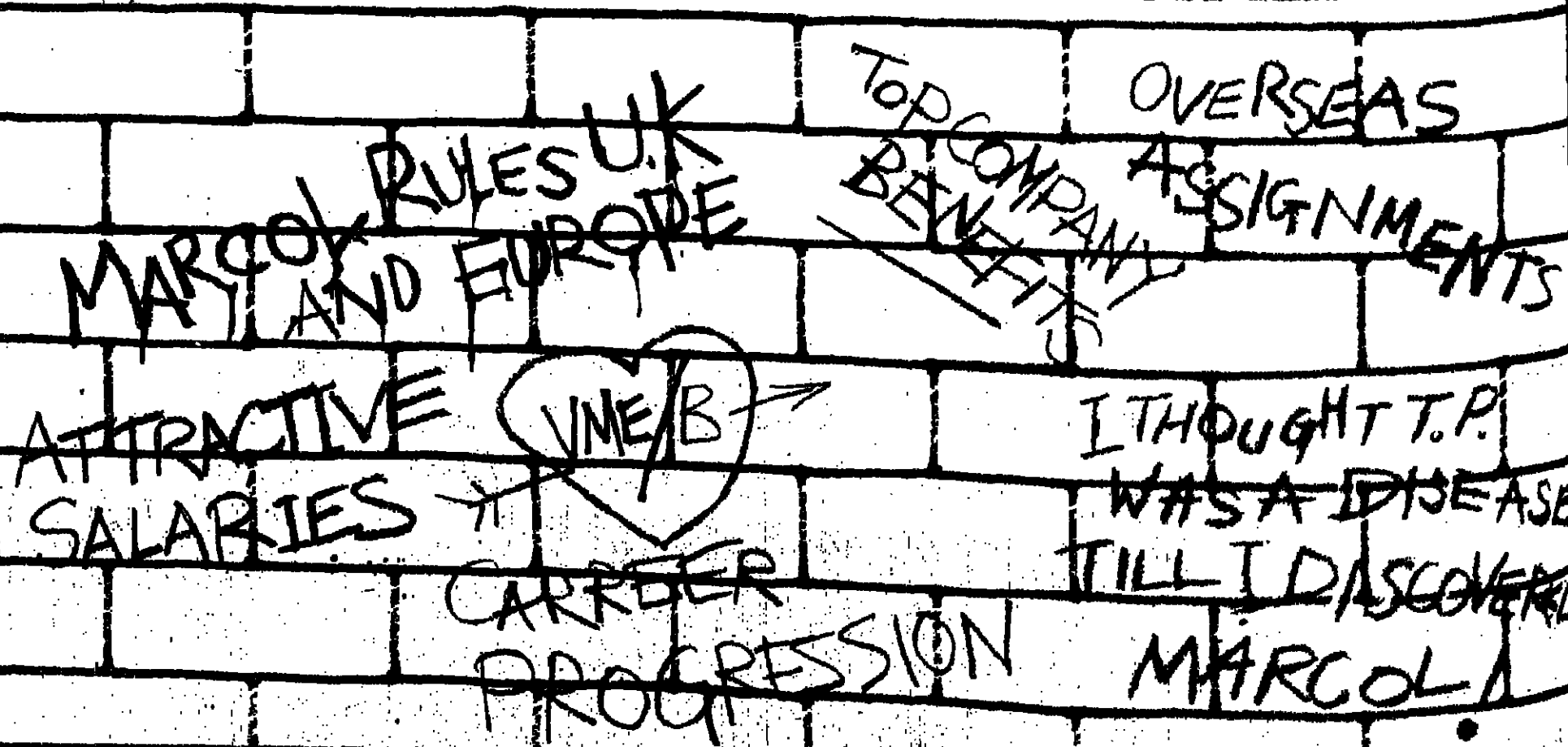
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COMPUTER OPPORTUNITIES IN SCOTLAND

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The computer industry has grown so much over the last quarter-century because it has, and still is, proving its value. Therefore, although the ship floor is being hit so badly at the moment, DP staff have been in a relatively secure position. Certainly some areas have been so badly affected that entire plants and businesses have closed but generally speaking DP departments are at least maintaining their staffing levels. Indeed, it is to their cost-effective computer departments that management teams must look to work towards turning the corner to renewed prosperity.

DP managers themselves are all too aware of this, but

constantly frustrated by the lack of funds available or policy blocks on using the best methods available to find qualified staff.

The future in Scotland is not grim. Even manufacturing companies, feeling the pinch most, are expanding their DP departments; new related industries are still moving to the area, more prosperous companies are undergoing large expansion projects.

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Scotland has held the reputation of offering lower salaries, a situation accepted by

by David Hicks

The future in Scotland is not grim, writes DAVID HICKS, of DML Services, Edinburgh. The quality of life, increasingly important to most people, should attract not just expatriates to posts north of the Border: Scotland has much to offer in terms of housing, environment and — not least — opportunities for those in DP not overly concerned with job titles.

smaller profit margin, but is a vital ingredient for a consultancy working to ethical standards and looking to their long-term relationship with clients and candidates alike.

As for the job situation in Scotland, the position remains to a great extent unchanged: there are still vacancies for experienced staff. Masses of trainees are waiting to obtain their first appointment, many of them under the false impression that they are already experienced. There is certainly room for the "sandwich course" concept to be extended and a greater degree of commercial applications to be introduced to the university courses.

Overall, therefore, prospects in Scotland look good. There are opportunities both commercial and technical staff with good career developments and the freedom to enjoy a wide scope of life should offer. There are some agencies that are putting themselves out to put both client and candidate rather than make a profit for as little effort as possible. Such a service can be a third part of a vital link that will allow DP departments to point the way to a healthier future.

Hydro-Electric

OPPORTUNITIES IN SCOTLAND

ANALYSTS & PROGRAMMERS ABERDEEN

Due to current expansion our client, the North of Scotland Hydro-Electric Board, require a number of D.P. PROFESSIONALS to work in project teams on commercial applications.

The modern, pleasant installation has new twin 2960 hardware, the conversion for which is complete. Database has been introduced and now on-line systems being developed.

Successful applicants will be working on a variety of interesting systems and have good promotional prospects. The service provided by our client also means an extremely secure future, in a prosperous area where housing is not as costly as it would be elsewhere.

SYSTEMS ANALYSTS £6,000-£9,000

Candidates should have a minimum of 18 months' commercial/business systems experience and be of degree standard or equivalent qualification.

PROGRAMMERS £6,000-£9,000

Candidates should have a minimum of 18 months' practical COBOL experience and reasonable academic qualifications.

Normal large company benefits include a generous relocation package.

For further details and to arrange a location interview phone David Hicks on 031-226 5989, or write enclosing a full C.V. to: DML Computer Personnel Services, 11 Charlotte Square, Edinburgh EH2 4DR.

Please quote reference CP/130/E. (3261)

General Accident

OPERATIONS

SCOTLAND £5,800 to £8,000 + Benefits

Due to impressive expansion and the planned introduction of an IBM 3033 to add to their 3031 and 8100 processor, our clients require the following staff to add to their operations department:

SHIFT SUPERVISORS

Candidates should have a minimum of two years' experience on large IBM mainframes and at least two years as a shift loader OS, MVS, JES2, CMS/VM background required.

SENIOR OPERATORS

Candidates should have large IBM mainframe experience operating under OS or MVS and be capable of progressing within the company. (For the above two positions there are also posts for applicants with slightly less experience.)

SENIOR JOB CONTROLLER (TP)

Candidates should have a sound knowledge of CICS/NCP/VTAM and be capable of progressing into network management. Good user-contact ability essential.

SENIOR JOB CONTROLLER (Non TP)

Candidates should have a good knowledge of OS/MVS JCL and CMS/TSO. The modern installation is situated in a picturesque riverside location in Perth, itself at the heart of an area high in sporting and recreational facilities. This attractive Tayside town is close to the Highlands and major Scottish cities.

As one of the Top Five UK Insurance Groups our clients can offer excellent benefits which include:

- * REDUCED MORTGAGE FACILITY
- * FULL RELOCATION TO PERTH
- * NON-CONTRIBUTORY PENSION AND GROUP LIFE ASSURANCE
- * GOOD CAREER PROSPECTS AND A SECURE FUTURE

For further details of these outstanding opportunities, and to arrange a location interview, phone David Hicks on 031-226 5989 or write, enclosing curriculum vitae, to: DML Computer Personnel Services, 11 Charlotte Square, Edinburgh EH2 4DR.

Please quote ref. CP/132/E. (3261)

PROGRAMMERS ... ANALYSTS ... ANALYST/PROGRAMMERS

... SENIOR STAFF

Opportunities exist in Scotland NOW for good quality candidates in the above categories within a wide choice of area, application and installation.

LOCATIONS: West Scotland - Glasgow - Central Scotland - Edinburgh - Borders - Tayside - Fife.

APPLICATIONS: Commercial/manufacturing programmers; technical programmers; commercial/manufacturing/business analysts; technical analyst/programmers; commercial analyst/programmers; software programmers; DP Managers; project leaders; sales/support; project manager.

BENEFITS: Our clients are installations with secure futures and offering some or all the following benefits:

- * MORTGAGE SUBSIDIES
- * GENEROUS RELOCATION ASSISTANCE
- * GOOD CAREER PROSPECTS
- * HIGHLY COMPETITIVE SALARIES
- * NON-CONTRIBUTORY PENSIONS.

For further detailed information to match your requirements and to arrange a location interview phone Ian Jennings on 031-226 5989 or write to: DML Computer Personnel Services, 11 Charlotte Square, Edinburgh EH2 4DR. (3261)

OPPORTUNITIES IN SCOTLAND

SYSTEMS DEVELOPMENT SCOTLAND

On behalf of a number of clients in Scotland we would like to meet ambitious PROGRAMMERS and SYSTEMS ANALYSTS.

The range of opportunities, all in commercial installations, is wide and the vacancies are at all levels of experience.

Salaries are attractive and in the range

£6,000 to £10,000

Interested? Why not contact our resident consultant - Irena Webster - and arrange an informal chat.

Ivor Norton Management Services Ltd
Recruitment Consulting Division
Central Chambers, 11 Bathwell Street, Glasgow G2 6LY
Tel. 041-226-4912 (3264)

GREATER GLASGOW HEALTH BOARD

A - SENIOR SYSTEMS DESIGNER

£7032-£8081 per annum

B - INTERMEDIATE SYSTEMS DESIGNER

£6288-£7885 per annum

C - TRAINEE COMPUTER PROGRAMMER

£3804-£4240 per annum

Increases to salary scales pending

Applications are invited from suitably qualified and experienced persons for the above posts in the Board's Computer Centre which is located at 27 Park Circus, Glasgow, G3.

Candidates for Post A require considerable experience in computing and proven ability to design and install complex systems. Programming experience is desirable while knowledge and experience of the National Health Service would be advantageous.

Candidates for Post B will be required to share and whenever appropriate supervise the work of systems staff engaged in the creation and maintenance of an ICL 1903T based computer system for financial and administrative applications. They should also have around four years' relevant experience and a good educational background.

Candidates for Post C should possess a degree or equivalent qualification in computing subjects and previously have had some administrative experience. Application forms and job descriptions may be obtained from the Personnel Office, Greater Glasgow Health Board, 351 Sauchiehall Street, Glasgow G2 3HT, to whom completed applications should be returned not later than Friday 14th November, 1980.

PLEASE STATE CLEARLY FOR WHICH POST YOU WISH TO APPLY (3265)

SOUTH YORKSHIRE POLICE (SHEFFIELD)

WANTED FOR INTERVIEW

SENIOR SYSTEMS ANALYST

Grade 801/2 (£8035 to £7222 per annum - pay award pending)

South Yorkshire Police seek a suitably qualified Systems Analyst to work with police officers engaged on the development and implementation of computer systems. Based at Police Headquarters in Sheffield the post offers a wide range of activities in advising and system design role in connection with police operated systems, a current project being the implementation of an information system on Data General equipment. Liaison with the computer staff of the South Yorkshire County Treasurer's Department will also be required in relation to police applications on the County Computer installation, currently an ICL 1904S.

The person selected will have programming experience, preferably with mini computers, and experience with Data General hardware will be advantageous, as will some knowledge of computer applications in a police environment.

Application forms are available from the Personnel Department, South Yorkshire Police Headquarters, 53-55, The Quadrant, Sheffield S2 8LY. Telephone: 78522. Extension 3388 (during normal weekday office hours) quoting post reference 850.

Completed application forms should be returned by 17 November, 1980. (3241)

SENIOR ANALYST PROGRAMMER

Playtex Limited, operating from their U.K. headquarters at Port Glasgow, manufacture a wide range of branded personal and family products for the U.K. and European markets.

The D.P. function require an additional Senior Analyst/Programmer who will be part of a small team providing D.P. support to all areas of the company. Some European travel may be involved.

The current equipment consists of an IBM System 3/16D with 128K for batch processing and a System 34 for on-line processing with local and remote terminals. Future plans include the installation of an IBM System 38 for which the database design work is underway.

Applicants should have a minimum of two years' experience using RPG-11 coupled with a knowledge of IBM System 3 and 34, preferably in a commercial environment.

Applications in writing to:

J. H. Boyle
Industrial Relations Manager
PLAYTEX LIMITED
Industrial Estate
Port Glasgow (3275)

ASSISTANT TO THE DATA PROCESSING MANAGER

An Assistant is required to the Data Processing Manager of an ICL 2904 installation with EDS80 and 7502 System. Experience of systems work and/or programming is essential.

Applications which will be treated in confidence should be addressed to the Personnel Manager, Diamond H Controls Ltd., Vulcan Works, Northwich, Cheshire, N.W.12 6AH. (2988)

UNIVERSITY OF LIVERPOOL

COMPUTER LABORATORY PROGRAMMER/ANALYST (LIBRARY)

to join small group concerned with the development and implementation of computerised systems for the University Library, primarily on a large ICL 1900 computer. Experience of administrative or commercial systems, particularly with use of ICL COBOL and IDMS database, an advantage. A degree is normally required for this post. Salary within range £5605-£8248 p.a. (under review).

Closing date for receipt of applications: 14 November, 1980.

Application forms may be obtained from The Registrar, The University, PO Box 147, Liverpool L69 3BX. Quote Ref. RV/589/CW. (3267)

FOR CLIENTS AND APPLICANTS IN UK AND OVERSEAS

Alex Daly
COMPUTER STAFF APPOINTMENTS
134 St. Vincent St., Glasgow
041-221 4166/9
Agents: Edinburgh/Perth/Leeds (3276)

BOX Nos.

Box number replies should be addressed to

Box No. 1
c/o Computer Weekly
Dorset House
Stamford Street
London SE1 9LU

COMPUTER STAFF

£7,500-£11,000 p.a.

Software or hardware programmers and/or analysts, technical/scientific.

Ring: 0494 35294
Galaxy, Ag. (3280)

WE INVITE YOU TO EXAMINE YOUR REASONS FOR JOINING A WORLD LEADER IN OIL

DATA COMMUNICATIONS SPECIALIST. ABERDEEN.

Below are 14 questions to which you can answer Yes or No. A glance will tell you that this Quiz is not over-difficult or to be taken too seriously. But we suggest that if you are interested in the career opportunity we set out in this page you might like to complete the Quiz and return it to us with your C.V. and in so doing, tell us a little more about yourself.

	YES	NO		YES	NO
Do you hold a Computer Science Degree			Occidental has an on-shore facility at Nigg Bay		
Have you ever worked in Telecommunications			The first North Sea Crude came ashore in 1975		
Do you believe you are an effective group worker			Occidental is a consortia of three companies		
Have you worked for more than two years in Data Processing			Aberdeen is 1 1/2 hours flying time from London		
Are you, in general, an optimistic person			Aberdeen is less than 60 road miles from Scotland's finest ski slopes		
Do you enjoy travel			Aberdeen City possesses some of the finest housing in Scotland.		
Occidental Oil started North Sea Oil exploration in 1970					
Occidental's second North Sea Platform is called Clayton					

Currently we have a vacancy for the above position, and seek a specialist of the very highest order.

The person we seek will have special knowledge of data communications and practice, and will have worked for at least two years in telecommunications, with the Post Office, communications vendor or as a communications user.

With us, you would specialise in network and terminal hardware problem identification and resolution, and would be our first specialist in this field.

ADDITIONAL RESPONSIBILITIES would include

- *Arranging maintenance
- *Analysing traffic flow and specifying network operating standards
- *Co-operating with technical personnel and implementing installation of moderns, multiplexors, data lines and terminal hardware.

Opportunity for career development is excellent as this position is the training ground for Operations Supervisor at Oxy Aberdeen.

THE RIGHT PACKAGE FOR YOU

Oxy appreciate that the successful candidate may well have to re-locate and we are particularly attentive to personal needs vis-a-vis travelling and housing. We provide every possible assistance in this respect, as well as offering a more than competitive salary, and there is an attractive Oxy package covering leave, sickness pay and pension scheme.

Write to: Mr. R. Grant, Personnel Officer, Occidental Petroleum (Caledonia) Ltd., 127 Causewayend, Aberdeen, AB2 3TP



PROFIT FROM OUR PROGRESS

Growing interests for professional scope

It may possibly come as a surprise to you to know that Rank Xerox is still developing. Since the 1950s we have maintained our leading position in the field of sophisticated reprographic systems - a reputation which has generated considerable success and profitability. However, we fully realise the importance of keeping pace with the advances of high technology, confidently expanding our interests and, as a result, creating many new and exciting opportunities.

Communications Systems Specialist Software Analyst

We are fast becoming the industry leader in the explosive growth market-place of communications products, particularly word processors, and for this purpose we have an established Systems Business Division in Uxbridge. Here, you will provide vital technical support to our sales force and service engineers utilising your specialist knowledge to advise and train customers in the implementation and installation of communications applications. This will involve spending the majority of your time visiting customers throughout the UK in order to assess their requirements. Additionally, you will assist in setting up relevant training schemes within Rank Xerox, primarily aimed at an increased understanding of communications. With HNC Electronics or equivalent or, alternatively, considerable data communications experience, you will have the ideal background and, following intensive product training, will enjoy unrivalled scope and prospects. Salary up to £9,000 p.a. plus car.

You will become fully involved in this expansion, joining our Software Support Group in Uxbridge, providing essential back up to our new range of software loaded systems products specifically designed for the office of the future. With responsibilities incorporating the identification of customer requirements, the installation of software, and post sales liaison, the position offers both stimulation and challenge in return for your systems expertise. Your background will have a sound programming and analysis base, primarily in a commercial environment with a minimum of 3 years relevant experience. Knowledge of word processing will be an added advantage. Salary £8,000+ p.a. plus car.

Becoming part of our future has a great deal to offer. In addition to salaries which are as competitive as our professional environment, we have a wide range of highly generous benefits which includes BUPA, free life assurance, pension scheme and excellent sports and social facilities.

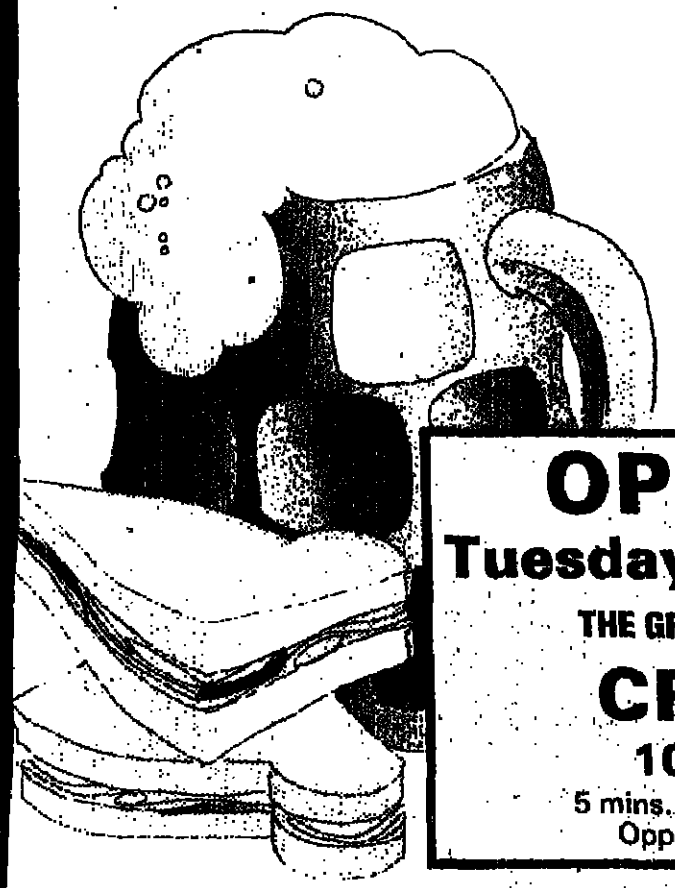
So contact Sue Weddell NOW on Uxbridge 38230.

Or write to the Personnel Department, Rank Xerox (UK) Limited, Middlesex House, 4 Mercer Walk, Uxbridge, Middlesex.

RANK XEROX

MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611



Programmers (to £10K), Chief Programmer (to £11K)
Systems Designers (to £11K), Business Analysts (to £10K)
Systems Programmers (to £10½K)

Bring this with you

OPEN DAY
Tuesday, 28th October
THE GREYHOUND, PARK LANE
CROYDON
10 a.m. - 9 p.m.
5 mins. from East Croydon Station
Opposite The Fairfield Halls

This is not only the chance for a free pint... it's a genuine opportunity to discuss the challenging prospects for your future that have arisen within the management and data services division of this multi-million pound organisation, based in Croydon.

Currently an IBM 370 installation using COBOL and running under DOS/VS and VM with an extensive T.P. network they are upgrading their equipment to the new 4300 range in the new year. They offer the chance to develop the database and teleprocessing techniques that most discerning data processing specialists crave.

So do yourself a favour, have a pint on us, tell us about yourself, and we'll tell you all about a rewarding career and the superb benefits that go hand in hand with these very attractive salaries.

(Alternatively, telephone Diane Williamson on 637-9611 for further details)

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

MANAGEMENT & EXECUTIVE SELECTION

MICRO COMPUTER DEVELOPMENT

West Midlands
Negotiable £10,000 + Car

An exciting career opportunity has arisen within an established mini and micro computer turnkey organisation.

The role includes the development of hardware and software for micro systems from components supplied from a highly reputable and established source. The company has detailed and accurate plans for the future of this venture and will involve the successful candidate in the setting up and progress of the organisation.

You should offer a background in mini/micro computer technology, including in-depth knowledge of DEC based hardware and software. A good technical grounding in DEC operating systems, languages, device interfaces and peripherals is required. Knowledge of commercial, graphical and technical applications would be useful. It is expected that you would have relevant academic qualifications and probably be earning a package around £10,000 to be at the level required.

Any experience in liaison with manufacturers and customers would be very valuable.

This position offers the opportunity to be involved from the ground floor, and to set up and establish a small team of professional staff. Salary will not be a limiting factor for the right candidate and general conditions such as pensions, sickness benefit, five weeks' holiday, BUPA, regular reviews and a company car are well above average.

For a strictly confidential discussion, please contact Mike Hession. Ref. CW286.

COMPUTER PERSONNEL CONSULTANTS
18th Floor, The Rotunda
Birmingham B2 4PA
021-632 6848

CPC

(3238)

Senior Systems Development Staff

For a major financial institution with a reputation as a leader in the field of life assurance, pensions and investment planning. Due to continued expansion, a number of significant opportunities have arisen in the Company's head office located in an attractive part of the West of England.

Systems Consultants
to £12,750 + Car

To play a leading role in the definition and analysis of complex business problems and the formulation of efficient systems solutions. Ideally candidates will have had at least 5 years substantial large systems experience with a demonstrable record of successful implementation. Initiative, self-confidence and a combination of business flair and strong analytical abilities are prerequisites. Preferred age is under 35. Ref. G861/1

Business Systems Consultant
to £12,750 + Car

Acting as an adviser to senior management, the appointee will initiate and complete a wide range of high level assignments across the whole spectrum of Business Systems work and will assist with the longer term planning of the Company's Admin. System. Applicants should have considerable experience of conventional business systems techniques including O & M, Methods Study, CVM and equipment evaluation. A knowledge of 'office of the future' methodology and a degree or formal Business Studies or O & M qualification would be additional advantages. Preferred age is 27-38. Ref. G861/2

Systems Analysts
to £11,800

Developing advanced computer systems has always been a major factor in our client's success. Analysts with a flair for the business side of systems development, who are alert, self-motivated, and determined to build a worthwhile career will find the right sort of challenge. Strong analytical skills, drive and creativity are essential. Experience is less important than ability, but 2 years solid systems analysis experience is a minimum. Ref. G861/3

All appointments enjoy substantial fringe benefits including a non-contributory pension, free life cover, BUPA, a profit sharing scheme plus an excellent relocation package.

TO APPLY
Please send a CV or write or telephone for an application form to JOHN KITCHEN, Executive Selection Division at the address below quoting the appropriate reference. Applications are invited from either sex.

BIS Applied Systems Limited
York House, 199 Westminster Bridge Road
London SE1 7UT
Telephone 01-633 0866

BIS Applied Systems

Targa

TECHNICAL DESIGNERS **c. £11,000**
A leading company in Systems Engineering require Experienced Technical people to join their team based either West London or North of London. The specific requirements for these positions are a minimum of 2 High Level Scientific Languages, i.e. Coral, Pascal, Fortran, RTL, etc., and experience in wide areas of Telecommunications and knowledge of microprocessors. In return an excellent package with good company benefits is available. Ref. 3083

ANALYST/PROGS., EAST ANGLIA **c. £8,500**
Our clients require Junior and Senior Analyst/Programmers who have a minimum of 3 years' experience including at least 1 year as an Analyst. A knowledge of COBOL is a specific requirement for these positions which are to develop systems with scientific data. A knowledge of ALGOL would be preferable although not necessary as full training will be given. The company operate a flexitime system and are offering a generous relocation package. Ref. 3125

BASIC + 2 PROGRAMMER—HERTS. **To £6,000**
Up to 1 year's Basic + 2 exp. on PDP machines, preferably using RSTS or RSX gained in a Commercial Environment. Good promotion prospects. Ref. 3067

COBOL JUNIOR PROGRAMMERS—WILTSHIRE **£5,500**
2 vacancies exist for Jnr/Progs with 12 months' exp. preferably gained on HP 3000 using MPE in a commercial site. Relocation expenses paid. Ref. 3120

DEC/PDP SHIFT LEADER—BERKS. **£7,000**
3 years' exp. as a Shift Leader using TOPS 10 or RSTS. Promotion prospects for this days only position very good. Ref. 2433

UNIVAC OPERATOR NW LONDON **c. £6,000**
12 months' experience of Univac 90/30 machines with knowledge of OS3/4 JCL. Ref. 2475

ICL 2905 OPERATOR—ESSEX **c. £5,000**
12 months' experience of general operating. Applicants must live in Central Essex. Ref. 2884

TARGA COMPUTER SERVICES
46/47 LONDON WALL, LONDON EC2M 5TE

(3234)

PROGRAMMERS Herts
Minimum 2 yrs. COBOL or ASSEMBLER experience on IBM mainframes.

TO ECK SYSTEMS PROGRAMMER London
Min. 4 yrs. programming to include 2 yrs systems programming. Function is to generate, install and maintain system and teleprocessing software and other generalised program packages.

ESK ANALYST/PROGRAMMER London
At least 4 yrs. COBOL programming/analysis and systems design experience using any mainframe.

Many more unadvertised positions

COMPUTECH SYSTEMS & PERSONNEL
168 Finchley Road, London, NW3

NEW COMPUTER DEVELOPMENT PRESCRIPTION PRICING AUTHORITY Newcastle upon Tyne

This Authority is to develop and introduce a computer system capable of processing and providing prescribing and costing information from 320 million NHS prescriptions submitted each year by more than 10,000 chemists and other contractors.

Currently 2,000 staff are employed to process this work manually in 9 centres situated in Northern England. The suitable candidate must be experienced in the design and implementation of computer systems.

SENIOR SYSTEMS DESIGNER/ PROGRAMMER (APPLICATIONS)

Salary Scale £8,017-£9,748 p.a.

The job entails controlling and supervising teams of Analysts/Programmers involved in Systems Design program writing, testing and implementation. The candidate will be closely involved with the users clarifying existing manual procedures and in the design of computer systems.

Application form, job specification and further information available from
Personnel Division, Prescription Pricing Authority, Bridge House,
162 Pilgrim Street, Newcastle-upon-Tyne NE1 6BN. Tel: New-
castle 253771.
Closing date: 12th November, 1980.

(3286)

OCC Contracts Personnel

Systems Analysts Senior Programmers

to c £25,000

+ Accom., Transport, etc.
Systems Analysts & Programmers with commercial experience on IBM 370 hardware are required, including DOS/COBOL, for the programming positions. Candidates, male or female, will ideally be graduates and 30+ years old. Long-term appointments available if preferred.

Compiler Designers Systems Architects

to c 80,000 DM

+ Benefits

Requirements definition and design of Compilers, Operating Systems, Database & Comms. software for a new range of Mini hardware. Excellent long-term career prospects in a stimulating and expanding environment.

URGENT: IMS Systems Programmer 100,000+ DM

For further details please contact Ivor Norton (day/evening)
OCC Contracts Personnel
1 Shottonway Park, Redhamstead, Herts. AL9 3PP. Ref. 1136

(3287)

Berkhamsted (04427) 2299

METROPOLITAN BOROUGH OF

Rochdale

TREASURER'S DEPARTMENT

SYSTEMS ANALYST (2 posts)

AP/502 (E5973/E7722) (Ref. E200)

TECHNICAL SUPPORT PROGRAMMER

AP/501 (E5973/7077) (Ref. E201)

PROGRAMMER (3 Posts)

AP/2/6 (E3980/E3981) (Ref. E202)

(Pay award pending for all posts. Salary related to experience)

Rochdale is currently implementing VME/K on a 2880 mainframe. New Systems are to be converted: older systems will be re-designed along with New Developments. To meet this ambitious programme the development staff is to be increased to a team of twenty.
For further information contact Mr. G. A. Martin, Rochdale
521100 Ext. 3313.

Application forms and further details are obtainable (by quoting appropriate reference number) from: The Chief
Personnel Officer, PO Box 98, Municipal Offices, Smith
Street, Rochdale OL16 1XG. (Tel. Rochdale 47474 Ext. 882)
to be received not later than Monday, 10th November, 1980.

(3279)

UNIVERSITY OF LIVERPOOL
Faculty of Child Health
Software Development

Applications are invited for the post of

ASSISTANT/SENIOR

RESEARCH ASSISTANT/
RESEARCH ASSOCIATE

in the Institute of Child Health, Alder
Hey Hospital. Applicants should be

experienced programmers and will join

a small research team developing

microprocessor controlled systems in

the field of clinical measurements. A

knowledge of Assembly language is

essential, experience with current MPU

hardware would be an advantage.

The project is financed for a period of

two years.

The initial salary will be within the range

£4785-£5065 per annum.

Applications, together with the names of

three referees, should be received not

later than 15th November, 1980, by

the Registrar, The University, P.O. Box

147, Liverpool L69 3BX, from whom

other particulars may be obtained.

Quote Ref. 10/157/01

(3288)

PROGRAMMER

for

NCR CRITERION

Glossy magazine publishers in W1 wish to recruit a programmer with a minimum of 2 years experience of NEAT/3 and/or COBOL.

Excellent working conditions in modern offices close to Oxford Circus and Piccadilly. Benefits include five weeks' holiday.

Please write giving full details of experience, present salary and availability to:

Beverlie Flower
The National Magazine Co Ltd
National Magazine House
72 Broadwick Street
London W1V 2BP

PROJECT LEADERS

HODDESDON - SUTTON - S.W. LONDON - C. LONDON

To £10,500

Several positions are available for people with at least two years' systems

experience covering commercial and financial applications, able to

lead teams of Analysts and Programmers.

CICS PROGRAMMERS

WATFORD - REDHILL - WEST END - HOUNSLOW - S.W.

LONDON

Five of our clients are seeking CICS Programmers with experience of

COBOL, DOS/VS OL/1 or PL/1 an asset. The positions are of varying

seniority and applicants must have at least 18 months' experience.

We also have many other positions with clients located in London and the Home

Counties. Please phone to find out about the areas of interest to you.

ANALYST/PROGRAMMERS

BRENTFORD - S.E. LONDON - S.W. LONDON - LEATHERHEAD

C. £8,000

COBOL Programmers with at least 2 years' programming experience and at

least one of these areas should have been as an Analyst/Programmer. We

also have many other positions with clients located in London and the Home

Counties. Please phone to find out about the areas of interest to you.

PROGRAMMERS

HODDESDON - BERKHAMSTED - CATFORD

C. £7,500

Urgently required - COBOL Programmers with at least 2-5 years

experience. The Berkhamsted position would accept any language from

people willing to learn COBOL.

WATFORD

Chief Programmer £8,750. Lead Programmer £8,500.

Senior Programmer £7,500. Programmer £6,500.

Experience required: COBOL with CICS, DOS/VS or OL/1.

Please write with full details or

phone for Applications Form.

(3249)

AMES PERSONNEL

Employment Agency Suite 14, Dryden Chambers,
119 Oxford Street, London W1R 1PA Tel: 01 434 1106

Newcastle upon Tyne

A major British company is in the early stages of establishing a major TP network serving subsidiary organisations throughout the UK. A substantial data centre is already established and is expanding rapidly in terms of workload, personnel and long term demands for its services. A large scale IBM system is installed and previous experience in a major IBM installation is required from candidates for the following positions. The company will negotiate excellent salaries in line with the indicators shown and generous relocation expenses. Salaries will be reviewed within six months.

These vacancies are all within the technical support group and are as follows:

Network Supervisors

Candidates must have practical experience in the operation and support of a medium sized TP network. Experience should include network planning, scheduling, configuring, costing and general technical back-up. These positions should appeal to young specialists, probably working within a team engaged on network support and development, but who now wish to assume more responsibility and become involved at an early stage with a growing installation. (Reference CW8088)

Network Operators

Within the support team there are also vacancies for Network Operators to assist in the development and support of the network. These are first class opportunities for candidates to gain experience in a rapidly expanding situation where the commitment to TP is total. Candidates could currently be Network Operators, but applications will also be welcomed from Shift Leaders or Senior Operators in an IBM installation supporting a network, who wish to specialise in this field. (Reference CW8089)

Systems Programmers

These are really outstanding opportunities for young systems programmers with a minimum of two years systems programming experience in a large IBM installation. Key software in use is MVS, CICS and DL/I. For one of the positions candidates must have significant experience in one or more of these areas. The second appointment requires in-depth experience of VTAM and NCP. Appointments can be offered which will suit the level of experience of particular candidates and will also reflect an assessment of the individual's potential for development. (Reference CW8090)

Interested candidates should contact Ivor Norton quoting the appropriate reference in writing or by telephone at the Harrogate Office in order to arrange a confidential discussion.

Ivor Norton Management Services Ltd

RECRUITMENT CONSULTING DIVISION

LONDON
62, Shaftesbury Avenue,
London W1V 7DE
01 734 8882

HARROGATE
P.O. Box 63, Copthall Tower House,
Harrogate HG1 1TS
Harrogate 68828

GLASGOW
11 Bothwell Street,
Glasgow G2 6LY
041 226 4911

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Sales Executives

London - Midlands

Bespoke and Package Systems

Are you a successful DP Sales Executive with flair and the maturity to handle the freedom to 'do it your way'?

Ideally you will have sold a wide variety of systems solutions to first-time users and you will have worked with a large multi-national manufacturer.

Basic salary is £10K and on-quota earnings are £16K, but our client envisages that the right calibre of professional candidate will earn at a rate of £20K within a year.

Sales Executives are required in London and the Midlands to sell bespoke and package software, either with or without hardware, in conjunction with major manufacturers. Our client has provided computer services to bluechip companies nationwide for over 10 years.

To find out more phone:

in LONDON

Geoff Richardson on

01-240 2441

in BIRMINGHAM

Reg Heath on

021-643 8501

Computer People

Midlands

Alpha Tower

Birmingham B1 1TT

021-643 8501

Recruiting for clients

VLI group

(3234)

An Announcement

Our client, one of the world's foremost oil companies, is consolidating its worldwide function of Petroleum Engineering and Exploration from its developed complex at Dhahran, Saudi Arabia. In support of these activities they are building one of the most advanced scientific/technical computer centres in the Middle East. The centre is due for completion by October 1981, and will consist of 4 3033's and some of the world's most sophisticated software. To assist in this massive program they urgently need to recruit SENIOR SYSTEMS ANALYSTS with between 3 to 10 years' experience with large IBM systems, and a background in PL/1 or FORTRAN to work on Capacity Planning and Analysis. There are also numerous opportunities for GEOPHYSICAL SYSTEMS ANALYSTS who are conversant with seismic processing techniques or geological data management systems, and PETROLEUM ENGINEERING SYSTEMS ANALYSTS who are familiar with production, reservoir, and drilling engineering technical concepts.

These senior and challenging opportunities are offered to men or women educated to degree level, who could expect a starting salary of up to £21,000 net plus a benefits package which rates amongst the most comprehensive and generous in the Middle East.

Please write or phone Peter Madams on 01-240 1488 (reverse charges) quoting PM/A67 for further details.

Computer People London VLI group

VLI House 68-69 St. Martin's Lane, London WC2N 4JS

01-836 8411

Recruiting for Clients

(3234)

Computer Operations Professionals

STOP

Entry point to the most exciting computer operations environment in Europe

Start here for involvement with the European Space Agency — the organisation responsible for placing and controlling scientific, communications and other applications satellites for users throughout Europe.

We are in the process of final negotiations for a contract to operate the Agency's computer systems at the following locations:

Noordwijk in Holland
Darmstadt in West Germany
Frascati in Italy

and the ESA Headquarters in Paris.

With negotiations nearly complete, we want to talk to operations staff who would be interested in taking part in what could be the opportunity of a lifetime. If you have experience on large scale computer systems, a professional attitude to computer operations and are interested in the most exciting

computer operations environment in Europe, we would like to hear from you, especially if you feel you could fill one of the following positions:

**CHIEF OPERATOR
SHIFT OPERATOR
SYSTEMS OPERATOR
PERIPHERALS OPERATOR
TAPE LIBRARIAN
KEY PUNCH OPERATOR**

Activities to be covered include scientific and general data processing, data preparation and library services. Operations

include real time support of launch operations and space control, operational support of current and future ESA satellites and running an on-line interface information retrieval service. The hardware currently in use includes C11-Honeywell, ICL 2980's, ICL 4172's, IBM 370, ITEL AS/5, Siemens 3277's, Nova 830's and R10 3600.

As permanent employees of RCA you will enjoy excellent salary packages at the highest continental standards plus further career development opportunities for both at home and abroad within the RCA Organisation.

For an application form contact: Joelyn Williams, Personnel Officer, on Sunbury-on-Thames 85511 (reply charges) or write to him at RCA Service Division Limited, Windmill Road, Sunbury-on-Thames, Middlesex.

RCA

AT LAST, A REAL ALTERNATIVE. CAREERS WITH OLIVETTI COMPUTERS.

A career with an established data processing company with 29 offices throughout the United Kingdom.

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Selling really impressive hardware. Fully compatible mainframes with support as it used to be.

Building a very special team of sales, systems engineering and full customer engineering support.

Is this the move you've really been waiting for? A real alternative.

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MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

NOTICE BOARD

**Are you a successful
salesman looking for
more success?**

Software Sales • London • £20K + CAR

Very rarely does a realistic opportunity arise for a successful Sales Executive which is tempting enough to make him move. We believe our client, a leading U.S.A. Systems company, has come up with just such an opportunity. With a well-established European sales support network in cities like London, Amsterdam, Paris and Geneva amongst others and a prestigious client base, they have penetrated even further into the IBM systems market. They are now looking to expand on their success by increasing their sales force in the U.K. If you have experience selling operations based software, ideally to the IBM market, salary, commissions and conditions are excellent with unlimited potential for an already successful aggressive professional.

For more information contact Robin de Rouen on 01-637 9611.

Chief Programmer -

Croydon

£11K+

FREE INS., SPORTS FACILITIES, L.V.s

If you have at least five years' COBOL/ASSEMBLER programming, and experience of RBM 370 under DOS/VS, CICS and VSAM ... we need.

Large two-mainframe installation, developing database and teleprocessing systems and investigating integrated information techniques.

Interested?

Ring Diane Williamson on 01-637 9611

This is difficult...

If you're the sort of sales professional who can rise to, and master a challenge our client will guarantee you:

£13,700 + 2-litre car

They have a communications orientated small business systems product. Already highly successful in Europe and all set to penetrate the competitive U.K. market.

As for support you will have the full resources of an established name in the computer industry who will leave the creative selling up to you.

If you live East of London or in South Manchester, contact Tony McGrath on 01-637 9611.

**Kawasaki
PROGRAMMERS
to £6½K**

Kawasaki Motors, one of the leading motor-cycle manufacturers, is a company working in a young and exciting environment.

Programmers with 1 to 2 years' RPGII and/or COBOL experience can become part of their expanding data processing department. Database and on-line developments on the HP3000 mean involvement in challenging new projects for the successful applicant.

Hewlett Packard experience is preferred but training will be given to the right candidate.

Salary to £6½K plus a merit bonus, pension scheme, life assurance and four weeks' holiday.

Please contact Diane Oubridge on 01-637 9611

Systems Programmers

HOME COUNTIES

MVS/VM/VS1/SVS

Requirement

extensive systems programming experience in one or more of

- * mainframe vendor
- * consultancy
- * user

Opportunity

wide-ranging Systems Engineer role

- * customer-based
- * installation of advanced software
- * SCP diagnosis and fix
- * systems consultancy
- * system cross-training

Environment

- * large mainframe manufacturer
- * rapid growth
- * exceptional career development prospects
- * big company benefits (including competitive relocation package where appropriate)

To discuss your career aspirations and how our opportunities may help you to meet them ring Mike Henderson, on 01-572 7383 or write to him at: Amdahl (UK) Ltd., Viking House, 29-31 Lampton Road, Hounslow, Middlesex.

amdahl

Software Specialists

to meet exciting challenges in

Electronic Office Systems

Nottingham up to £11,000 p.a.

We are looking for Project Managers and Programmers in these areas:

Operating System Software

DEVICE DRIVERS - Daisy wheel printers, Winchester discs, magnetic tape, floppy discs.

DATA COMMUNICATION METHODS - Packet switching, asynchronous, synchronous, HDLC and other communication protocols.

FILESYSTEMS - File access methods, file archiving, security, integrity.

MULTIPROCESSOR SUPPORT - Master/slave processor co-ordination, changeover methods, multiprocessor scheduling.

ON-LINE DIAGNOSTICS - CPU, memory and peripheral testing.

LANGUAGE SUPPORT - Compilers, interpreters, link-loaders.

Application Software

to work on word processing, message switching, teleprocessing terminal emulation, telephony support, commercial packages, electronic mail and filing systems.

Ring Peter Newman Chief Engineer - Office Systems, on (0602) 221157 or out of office hours on (0607) 72844. He'll give you the details.

Alternatively, send a brief c.v. or write/ring for an application form from Allan Youdell, Recruitment Officer, Plessey Communications and Data Systems Limited, Beeston, Nottingham NG9 1LA. Tel: (0602) 254831.

SYSTEMS ANALYST/PROGRAMMER

Required by

**Abingdon
carpets limited**

We have a vacancy for a person who has the following experience:

- at least two years' practical systems analysis experience
- programming experience in COBOL
- practical experience of implementing commercial systems
- experience of data preparation systems, mainframe operating systems and applications and, to a limited extent, personnel management.

Salary according to age and experience. Apply in the first instance to: Jane Barclay, Abingdon (0235) 27515. Abingdon Carpets Limited, 5 Nuffield Way, Abingdon, Oxon.

BRITISH OLIVETTI BCS 3030 COMPUTER OPERATOR

First-class experienced operator required for the above computer.

Wages according to qualifications and experience.

Please contact THE FINANCE DIRECTOR on 01-640 8311 to discuss the job

Successful applicants will receive first-class remuneration and will work with a go-ahead, progressive company.

Please bring your c.v. with you to the interview

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RN-SSK DIESEL-ELECTRIC SUBMARINE WEAPON SYSTEM

NEW PROJECT: NEW OPPORTUNITIES

SOFTWARE DESIGN ENGINEERS

The advent of a new class of submarine for the Royal Navy brings with it fresh opportunities for a system approach to the proposed weapon fit. As a significant part of a multi-million pound contract Vickers Shipbuilding Group Ltd. Weapons Department have been designated CO-ORDINATION AND SYSTEM DESIGN AUTHORITY with responsibility for overall system design development and performance amongst other tasks.

As part of the newly-formed team SOFTWARE ENGINEERS are required with particular responsibilities in a REAL TIME MICROPROCESSOR-based system for:

- Specification, design and implementation of software modules for submarine weapon guidance and target analysis systems using high and low level language.
- Analysis of Mathematical and Statistical methods particularly those concerned with target tracking (e.g. digital filtering techniques).
- Assessment of overall system considerations concerned with the procurement of a total ship weapon system.

Experience of submarine operations would be desirable.

QUALIFICATIONS AND EXPERIENCE

Honours degree or equivalent in maths or applied science plus at least 3 years experience of Software design for Military and Industrial real-time systems.

The positions are open to both men and women.

Please write with details of age, qualifications and experience to:

Mr J. Richardson, Personnel Officer,
Vickers Shipbuilding Group Limited,
Barrow Shipbuilding Works, PO Box No. 6,
Barrow-in-Furness, Cumbria, LA13 1AB

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(3216)

Sales Executive South Africa £30K

South Africa has one of the highest living standards in the world. Nixdorf Computer, in the midst of a burgeoning economic explosion, has a top opportunity for the right executive. You will be experienced in computer sales (ideally with some knowledge of Nixdorf's 8870 and 820) and have a good track record. You will know systems, be self-motivated and capable of negotiating at very senior levels. Interviews will be conducted in the U.K. and the successful applicant will receive assisted family passage, removal expenses and medical cover etc.

Executive basic salary, fringe benefits and commission. Incentives will enable you to enjoy a low tax, high sunshine life style, at a level probably very different from your contemporaries.

Please write, including your curriculum vitae to:

John Fletcher, Sales Manager,
Nixdorf Computer (Pty) Ltd.,
P.O. Box 7911
Johannesburg
South Africa

**NIXDORF
COMPUTER**

3285

UNIVERSITY OF BIRMINGHAM MICROPROCESSOR SYSTEMS LABORATORY COMPUTER OFFICER

Applications are invited for the post of Computer Officer within the University's newly established Microprocessor Systems Laboratory. Preference will be given to applicants who are professionally qualified, have relevant experience and are familiar with the software and hardware of a range of microprocessor systems.

Salary will be on the scale £4,795-£8,085-£9,595 (under review), plus superannuation.

Further particulars are available from Mr R. W. Bushaway, Computer Centre, University of Birmingham, P.O. Box 363, Birmingham B15 2TT, to whom applications (three copies) including a full curriculum vitae and naming three referees should be sent by Friday, 14th November, 1980.

Please quote reference 6WAX. 1323b

SENIOR COMPUTING ASSISTANT

Required in Department of Economics, University of Reading. Some knowledge of economics and/or statistics desirable. Salary in scale £3,339-£4,418 p.a.

Apply for further particulars to Personnel Officer, University of Reading, Whiteknights, Reading RG6 2AH. (Ref. T.E. 49A).

(3236)

KENT COUNTY COUNCIL

For sale by tender

GENERAL AUTOMATION MINITOM COMPUTER

about 3 years old, comprising: Hardware: 16330 Processor, 32K of 16 bit word length core random access memory, 10 Mb disc, 180 character per second matrix printer.

Software: Basic, Commercial Fortran, Fortran.

Further details from Contracts Officer, Kent County Supplies Centre, The Air Station, West Malling, Maidstone, Kent. (3278)

UNIVERSITY OF NOTTINGHAM CHIEF PROGRAMMER

Required for the Administrative Data Processing Unit of the University of Nottingham which is replacing an ICL 1901A with an ME28 with three Disc Drives and two Magnetic Tape Units to support Workstations and Video Terminals for batch and on-line processing. The appointee will be responsible for two other programmers, program writing and maintenance and will assist in the design of new systems. Five years' experience in Commerce or University data processing required. COBOL is essential and PLAN would be an advantage.

The appointment will be made in the salary range £4,795-£9,595 per annum.

Forms of application, returnable not later than 10th November, 1980, from the Staff Appointments Officer, University of Nottingham, University Park, Nottingham NG7 2RD. Please quote Ref. No. 757. (3211)

GOVERNMENT LABORATORY POLYTECHNIC COMPUTER CENTRE TEAM LEADER

2787-2792 or 2787-2807. Applicants should have a degree or equivalent in Mathematics, Computer Science or other relevant discipline, and four years' experience of programming in a scientific, industrial or commercial field. A higher degree would be an advantage.

PROGRAMMER/ADVISER

2792B-2801. Applicants should have a degree or equivalent in Mathematics, Computer Science or other relevant discipline. Experience of programming in a scientific, industrial or commercial field would be an advantage. ALL SALARIES QUOTED ABOVE ARE CURRENTLY UNDER REVIEW. Details from Assistant Personnel Officer, Government Laboratory Polytechnic, Friary Street, Coventry, CV1 1JF. Please quote Ref. No. 757. (3285)

Recruitment



In Informatics

IMS & DL-1 Professionals

Netherlands: Salary to £20K

A Dutch Systems and Software Consultancy based in Amsterdam has current requirements for Systems and Applications Programmers/Designers. Suitable Systems respondents must offer current or very recent IBM Programming experience with either DL-1 or IMS internals. The nature of the work will include the generation and implementation of new Software releases, liaison with in-house users will form an

essential part of the job function. Applications Programmers will be concerned with the design, coding and implementation of Systems in the areas of: (a) sales and trend forecasting; (b) spare parts and inventory control and (c) budgetary assessment and forward planning. These positions represent an outstanding opportunity for both contract and permanent personnel to enhance their IBM skills. Ref: L/43/A

Senior Commercial Programmers

City: Pkg. to £12K

The high salaries offered by this City-based institution reflect the importance placed on the acquisition of top quality personnel to assist in a major up-grade of their IBM installation. At least three, and preferably five, years' COBOL programming experience in an on-line environment is essential. Applicants who are, additionally,

able to offer a knowledge of Assembler and familiarity with CICS internals will be especially welcome. The company's expanding development programme ensures that successful candidates will not only be exposed to "state-of-the-art" technology but will also be given the opportunity for rapid career advancement. Ref: L/43/B

Microprocessor Engineers

Switzerland: Salaries to £15.5K (equivalent)

We have an exclusive assignment to recruit several Software Development Engineers to join the Company's permanent staff based in German speaking Switzerland. Emphasis will be placed on technical achievement and in-depth industrial/practical experience. A B.Sc. or M.Sc. Degree in Electronics, Electrical Engineering or Computer Sciences is a desirable asset. Additionally, all candidates must offer a minimum of four years' microprocessor software development. All respondents should be fully familiar with Motorola 6800, Intel 8085/8 or Zilog Z80 hardware and

software. It is preferable to offer some German language ability for social/cultural reasons as much as for the working environment. Of prime importance is a real enthusiasm to relocate to Switzerland for a minimum period of 2 years. Assistance will be given in relocation including the cost of removal of all personal effects and the provision of temporary accommodation. Our clients offer an above-average salary together with an unrivalled range of ancillary fringe benefits. Initial screening interviews will take place in London. Ref: L/43/C

Mini/Micro Assembler

E. Anglia: Salary to £10K

The MicroSystem Division of one of Europe's leading systems suppliers has a number of vacancies for Programmers with one to five years' Assembler experience on any leading mini or micro computer. An academic qualification in either Computer

Science or Electrical Engineering is advantageous but relevant industrial experience is equally welcome. Although particular applications knowledge is not a limiting factor familiarity with on-line, real-time techniques is essential. Ref: L/43/D

S/W Designers and Engineers

W. Country: Salary to £11.5K

One of Europe's renowned communications companies with a well established and expanding Communications Development Group urgently requires dedicated real-time professionals for its "software workshop". Currently you should be employed as a Software or Development Programmer/Engineer and have 1-3 years' mini-computer or microprocessor Assembler experience. Some positions will require active and regular pre- and post-sales sup-

port, whilst others demand software and firmware development skills. Involvement with PDP11, VAX 11/780, System X oriented processors or Intel 8085/8 or Zilog Z-80 micros will be particularly advantageous. Candidates with a background in real-time military or defence applications are equally encouraged to apply. Interviews will be arranged on the Company's premises in this reasonably priced location. Ref: L/43/E

Systems & Programming Consultants

Central & West London: Salary to £14K

An internationally renowned Systems and Programming Consultancy is currently seeking dynamic, ambitious professionals to join its specialist project teams. These positions will appeal to candidates who enjoy developing systems and solving related business problems. Suitable candidates will have a minimum of three years' programming experience on any commer-

cial machine and of particular interest will be those who have a knowledge of COBOL and Assembler. You should have designed at least one complete system from feasibility to implementation and those who have experience of project leading, customer liaison or management will of course be considered for more senior positions. Ref: L/43/F

Real-Time Applications

Surrey/Berks: Salary to £11K

A leading Total Systems Supplier has an urgent requirement for Analyst/Programmers and Project Leaders to join either its Customer Support or Software Development teams. Analyst/Programmers should possess at least 2 years' Assembler, Basic+ or COBOL programming experience gained on any leading mini or micro-computer. Addition-

ally, successful candidates will be expected to offer at least 12 months' analysis of either scientific or commercial systems. Project Leaders should have a similar background supplemented by actual or potential management abilities. Location is unlikely to be a limiting factor as the Company is well served by rail and air facilities. Ref: L/43/G

Logistix, 10 Grenville Place London SW7 4RW

01-373 3063



Telex: 28800

Incorporated by D.O.I.

Lic. No. 564/4127

ARCHITECT'S DEPARTMENT COMPUTER APPLICATIONS OFFICER

Salary to maximum £7722
(Pay award pending)

The successful candidate will be required to monitor and be conversant with computer developments and applications together with researching and advising on the new technology available which may be pertinent to the work of Architects, Quantity Surveyors and Engineers. In addition there will be a responsibility for supervising two Coders for the development and efficient running of existing computer programmes on the Council's main-frame ICL 2900 series computer in connection with the preparation of Bills of Materials and the processing of the Office Job Costing System. The successful candidate should therefore have experience with computer techniques, ideally in the building industry, and preferably be able to write simple programmes dealing with technical subjects. Commencing salary dependent upon age, qualifications and experience.

Application form, returnable by 7 November, from the County Architect, Springfield, Maidstone Kent.

(3277)

KENT COUNTY COUNCIL

SENIOR ANALYST PROGRAMMER

Playtex Limited, operating from their U.K. headquarters at Port Glasgow, manufacture a wide range of branded personal and family products for the U.K. and European markets.

The D.P. function require an additional Senior Analyst/Programmer who will be part of a small team providing D.P. support to all areas of the company. Some European travel may be involved.

The current equipment consists of an IBM System 3/15D with 128K for batch processing and a System 34 for on-line processing with local and remote terminals. Future plans include the installation of an IBM System 38 for which the database design work is underway.

Applicants should have a minimum of two years' experience using RPG-11 coupled with a knowledge of IBM System 3 and 34, preferably in a commercial environment.

Applications in writing to:

J. H. Boyle
Industrial Relations Manager
PLAYTEX LIMITED
Industrial Estate
Port Glasgow

(3275)

playtex
LIMITED

CALMA

INTERACTIVE GRAPHIC SYSTEMS
A Division of United Computing Systems Inc.

is an American-based company specialising in the production of computer systems for design applications. These applications cover integrated circuits, printed circuit boards, mapping and mechanical design. We are growing rapidly and have recently opened a new European customer support facility located in Kingston, Surrey. To support the expansion, we require the following staff:

1) SENIOR HARDWARE TECHNICAL SUPPORT ENGINEERS

Applicants should possess experience as computer field service engineers. Experience in microcomputers or plotting equipment would be particularly relevant. c. £3,800 + car.

2) HARDWARE REPAIR CENTRE TECHNICIANS

Although previous computer experience would be desirable, applicants possessing a sound practical and theoretical grasp of electronics would be acceptable, as full training will be provided. c. £7,600.

3) DIAGNOSTICS PROGRAMMER

This position is likely to suit either a very experienced Technical Support Engineer, possessing an aptitude for programming, or a Systems Programmer with a keen interest in hardware. The work will involve writing and control of all types of diagnostic, and provision of technical support in situations where the exact nature of a problem requires definition. c. £10,000 + car.

4) HARDWARE TRAINING INSTRUCTOR

Required to set up a training department from scratch. Successful applicants are likely to be already employed in this capacity, and have extensive computer experience. Should be a good communicator, and capable of motivating staff for a diverse range of products. c. £9,800.

Conditions of employment will reflect the high grade of people being sought and will be very competitive.

PLEASE CONTACT: CALMA COMPANY, NEVILLE HOUSE, 85 EDEN STREET, KINGSTON-UPON-THAMES, SURREY

(3268)

Programming Team Leaders

with DEC experience; up to £8000

After sixteen years of consistent and profitable growth, Hoskyns has broadened into one of the largest computer systems and service companies in the U.K. Hoskyns Systems Development is a market leader in the development and implementation of application systems for the Financial, Distribution and Manufacturing Industries.

Our minicomputer business is growing fast, and we now need more senior programming staff with the ability to manage projects and help support our growing customer base.

Specifically, we are looking for programmers with team leading and minicomputer system design experience, preferably with knowledge of DEC's PDP 11 series and BASIC, to work in London, Birmingham or Manchester.

If you are interested in these positions please apply to Tony Winslade, Hoskyns Systems Development Limited, 145-157 St. John Street, London EC1V 4QJ. Telephone: 01-251 4581.

hoskyns

(3231)

EDP SYSTEMS ORGANISER/ANALYST

We are a highly successful company manufacturing precision engineered products for a world-wide market.

We currently use an IBM System 34 with 9 terminals, a processor of 128K and 128 MB disk capacity. Planned upgrades will take this to 256K and 256 MB during 1981, and an IBM System 38 is currently under consideration. Existing applications cover financial and production systems with the emphasis on future developments being in the production areas. IBM MAAPICS is being studied with a view to its use in production and inventory control applications.

The successful applicant will have had considerable experience in industry to include commercial, financial and production functions and have had at least 4 years EDP experience. A knowledge of IBM System 34 or IBM System 38 would be preferred.

A competitive salary will be offered together with the benefits associated with a progressive company.

Substantial relocation assistance will also be provided where necessary to this pleasant rural area where housing is favourably priced.

Write for an application form or telephone our Recruitment Officer, Mr. S. Murphy on Grantham (0476) 6677.

(3244)

British Manufacture and
Research Company Ltd.

Springfield Road, GRANTHAM, Lincolnshire, NG31 7JB
A member of the Oerlikon Bahle Group

COMPUTER WEEKLY CLASSIFIED

01 261 8028/8097/8019

the newspaper computer people rely on

Senior Programmer

£7362-£8823 inclusive (award pending)

You will be responsible to the Project Leader for programming required by the team, and for supervising a small group of programmers. You should have at least 3 years' COBOL programming experience, and be able to motivate and control staff. Knowledge of Geopac and/or VME/D an advantage. (Structured programming and on-line programme development techniques are used.) You operate a 6 megabyte ICL 2872 under VME/B and an ICL 2860 under Geopac 3 DME to support our expanding computer network and development plans based on a central VME/B service. We offer a 35-hour week with flexitime, 28 days' annual leave (plus 10 statutory/extra days), season ticket allowance and contributory pension scheme. Further details from Nick Wright (01-874 6464 ext. 235).

Application forms from Director of Finance, Town Hall, London SW18 2PU (01-874 6464, ext. 350/376). Closes 11 November.

(321)

Wandsworth

Over £10,000

This is what we expect to pay for a Shift Leader with drive, enthusiasm and proven managerial experience to control a shift of 9 highly efficient operating staff. In addition a high degree of IBM technical knowledge of operating is required.

This vacancy has arisen because of the internal promotion of one of our Shift Leaders to the Technical Support Section.

Our operating teams work to very high standards and you will be required to maintain and enhance these in a dynamic environment.

Currently LOLA has a 6 megabyte IBM 370/158AP running under MVS JES2 supporting large IMS TP, TSO and APL networks. An additional processor is currently undergoing acceptance tests on site to enhance the existing services.

Our requirements for this post are a minimum of 6 years' appropriate experience with at least two years' in a senior supervisory capacity. With slightly less than this you could be considered for the post of Deputy Shift Leader.

Further information and application form from:

Peter Anthony, Chief Operator, LOLA (London On-Line Authorities), Tower Point North, Sydney Road, Enfield, Middlesex EN2 6UE. Tel: 01-366 6611 (Ext. 266)

LOLA

ANALYST/PROGRAMMER

London IBM Cobol/PL1/Mark IV

Tel: Roger Barnes on 01-628 4200
486 Coptall Avenue, EC2R 7DA

Systems Analyst & Snr. Systems Analyst

Essex/Heris. Border. £8,000 to £10,000
Is your career needing a lift? Come to where brand new development work is the order of the day! One of the world's largest industrial leaders has a dual Honeywell system operating in a real-time on-line mode, and requires first-rate systems people. A wide choice of application areas include accountancy, personnel, production control (MAPICS on System 34), warehousing control and a complex distribution reporting system. Really excellent perks include five weeks' holiday, free BUPA, subsidised canteen, first-rate S&S club and generous relocation expenses. CW43/1. Michael.

CW43/1.

Senior Systems Analyst

Relgate £8,500 to £10,000
If you have a manufacturing applications systems background please give us a ring. A very profitable client of ours is urgently looking for the right person to implement new systems. Here is the chance for a more Junior Analyst/Programmer to move into pure systems work. There are the usual large company perks including an excellent S&S club and a proper system of promotion. CW43/2. Colston.

Insure Your Future in Analysis

City £10,000
A major insurance company is expanding its present on-line Honeywell installation and investigating brand-new financial management information systems. You could be a major contributor to their new plans. Excellent perks include annual bonus, free B.U.P.A., free life assurance and 50p L.V.s per day. CW 43/3. Michael.

Senior Systems Analyst

Richmond/City To £11,000
Another major insurance company with two locations is anxious to recruit an Analyst with mini or maxi computer experience. Their installation includes both IBM and two types of minicomputer to cut your teeth on. A multiplicity of new and enhanced commercial on-line systems needs your attention, so apply now. They work flexitime and have other perks including an annual bonus and non-CPS. CW43/4. Michael.

Micro Programmers/Designers

London/Home Counties £7,000 to £10,500 + Car
Stand up all those with INTEL 8080 (or ZILOG 80) micro based equipment programming or design experience. Now is your chance to use your undoubted skills to great advantage. A number of systems houses and similar manufacturing companies in S.W. LONDON, W. LONDON & HERTFORDSHIRE are expanding their resources and require your type of experience. Two of our clients offer European travel and company cars. CW43/5. Tricia.

Communications Engineers

London based £9,000 to £12,000
Have you the sort of experience that covers in depth one or more of the following: FILE TRANSFER PROTOCOL, PACKET SWITCHING, NETWORK ANALYSIS, FILE TRANSFER, SYSTEM X, etc. If you have two years or more communications knowledge then this American computer engineering company will be very interested in you for brand new project work. Possibly some training in America. CW43/6. Michael.

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THE SALES BIT

Fair or unfair dismissal: Points to watch

LAST week I wrote about the rights of the employee during the period of employment. This week I shall continue with the dismissal process itself.

An employee who has been continuously employed for a period of more than one year has the right not to be unfairly dismissed by his employer. If he is dismissed in a manner which he believes to be unfair, he has the right to put his case before an industrial tribunal. This does not apply in cases where the employee is the wife or husband of the employee, where the employee has reached retirement age before the date the termination comes into effect, or where the employee is contracted to work overseas.

Once a case of disputed dismissal has come before an industrial tribunal the onus is upon the employee to prove that he was actually dismissed. Clearly, it is to the advantage of the employer to convince the tribunal that the employee actually resigned. However, if dismissal is proven or acknowledged by the employer, the burden of proof that such dismissal was not unfair lies with the employee.

The Employment Protection Act specifies five areas in which dismissal is acceptable, and unless the employer can state a principal reason for dismissal which falls into one of these categories, it is certain that a pronouncement of Unfair Dismissal will be made.

The permissible reasons for dismissal are:

1. The capability or qualifications of the employee for performing the work he was employed to do. This includes sickness.

2. The conduct and general behaviour of the employee.

3. Redundancy.

4. A legal restriction which makes continued employment impossible.

5. Some other substantial reason which justifies the act of dismissal.

The final category is rather broad, to say the least of it, but this is intended to embrace such situations as personality conflicts among employees, setting up or working

for a competing business and the completion of a fixed-term contract of employment.

Having shown that the reasons for dismissal falls within these five categories, the employer must then go on to convince the tribunal that the dismissal was fair and reasonable in the circumstances. The basic consideration is whether or not the punishment fits the crime.

There are no hard and fast rules for this kind of judgment as each case is unique and has to be considered on its own merits. However, a number of guiding principles have been developed. The most important are:

● Employees should not normally be dismissed for a first offence, even if company rules state that employees are liable to instant dismissal for such an offence. A conviction of crime is not necessarily a good reason for dismissal.

● A full inquiry should be made into all the relevant facts before dismissal is decided upon.

● Employees can only rely on facts they know to be true at the time of dismissal to justify their action. Facts which come to light at a later date are ignored by tribunals.

● The employer does not need to prove categorically that the reason for dismissal is an absolute fact; reasonable belief is sufficient.

● In a borderline case where the decision to dismiss or not could have gone either way, management must have the last word. Tribunals should only step in and declare the dismissal to be unfair if they decide that no reasonable management would have dismissed the employee in the circumstances.

TRADER

Puzzle Answer

SHOT lengths of 125 and 150 metres will enable the course to be played as follows:
3x150-125, 1x150+125,
4x125-150, 3x125-150,
1x150+2x125, 2x150+125,
150, 2x150, 2x125.

CW Prize Crossword 9

C	H	I	L	T	E	R	N	S	P	I	P	I	T
O	N	A	U	O	A	A	R						
C	R	A	C	K	S	M	A	N	V	I	R	T	U
K	M	E	M	G	I	K	E						
C	O	M	I	T	Y	B	A	L	L	A	S	T	
B	E	R	N	I	L	I	O						
R	E	A	D	T	H	E	R	I	O	T	A	C	T
E	T	D	O	D	N	N	Y						
A	T	O	N	E	S	L	A	S	T	G	A	S	P
K	F	E	L	D	B	T	E						
C	A	S	E	L	A	W	T	R	E	V	O	R	
O	L	A	A	A	L	M	T						
V	A	U	N	T	T	E	M	P	O	R	I	S	E
E	M	E	E	I	N	S	N						
R	O	P	E	D	R	E	L	E	G	A	T	E	D

WINNER of Computer Weekly's Prize Crossword No. which win £5, are John 9 is Stephen Collins, scientific officer with the National Phys- Services, Birmingham, and F. Laboratory, who wins R. Oliver, of the Dept of Eco- nomics, Exeter University.

(3259)

COMPUTER WEEKLY

OCTOBER 30, 1980

RECRUITMENT & EDUCATION SUPPLEMENT

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In spite of rising unemployment the computer industry continues in its demand for a regular supply of qualified computer people. As the market expands, so to does the need for new skills and abilities. Although more and more training facilities are available, the chronic shortage of manpower remains, causing a major problem for all companies involved with computers.

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challenge and share in the achievements of the next decade and beyond.

This years supplement will be published on October 30 and distributed in the normal way to all Computer Weekly readers. Copies will also be available to visitors from the Computer Weekly stand at Compec. Last year, some 34,745 visitors attended the exhibition.

The supplement is a unique publication, being the only newspaper of its kind produced in the U.K. dealing specifically with the subject of careers and job opportunities for DP personnel. The combination of the supplement's extensive editorial support, the large circulation, and Computer Weekly's standing in the industry, means this supplement is a must for recruitment advertisers.

Computer Weekly has the largest circulation in the specialist computer press (91,656 ABC July-Dec 1979). This has increased continually over the years to reflect the ever growing number of personnel in the computer industry. Additionally, and equally important, the newspaper has the highest number of individually requested copies of any weekly computer publication.

For further details regarding the supplement and the special Compec free computerised recruitment service, contact your nearest Computer Weekly Classified Office: London: 01-261 8028/8019/8174/8097. Manchester: 061-872 8861. Birmingham: 021-356 4838.

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